

Cost and Management

Incorporated in 1920 and published monthly by the
SOCIETY OF INDUSTRIAL AND COST ACCOUNTANTS OF CANADA

Editorial and business offices:

31 Walnut Street South, Hamilton, Ontario

Editor: J. W. ROSS

Assistant Editor: J. M. PARKER

Subscription price to non-members, \$5.00 per year

Single copies, 50 cents. Members desiring five copies or more
of a single issue, may obtain them at 25 cents each.

Opinions expressed by articles and comments are not
necessarily endorsed by the Society.

*Authorized as second class mail, Post Office Department, Ottawa
and for payment of postage in cash.*

Return postage guaranteed.

Editorial Comment . . .

Imagination and Reality

ONE of the essential qualities of management is imagination. Without the ability to dream and visualize, a man is unable to set goals for himself or inspire others to work towards an end that may as yet be only a series of stages represented on a planning sheet. Yet a man who possesses a vivid imagination and lives entirely in the clouds, who is unable to weave his ideas into the texture of daily reality, is unable to lead people because his aims are usually incapable of attainment or else the price of attainment is greater than the reward.

In fixing a goal, a manager must be fully aware of the daily state of affairs and of future possibilities. This is the framework within which he perceives, plans, and leads his workers to the objectives. In measuring the status quo, a leader usually has many valuable tools in the form of accounting mathematics, statistical techniques, and various forms of research by which he can measure what has happened and what is happening. However, in projecting the present into the future and in measuring tomorrow's possibilities, the manager's tools are not always quantitative; much is left to intuition and judgment which are necessary to all good leaders. Somewhere between the statistical poles of future possibilities, a manager will lay his course and employ his resources.

For many years, it was traditional for accountants and financial people to be concerned solely with the past. This preoccupation with tabulating, coding and balancing past history became ingrained in the thinking of accountants. More recently, a slow trend has been gathering momentum whereby accountants are more concerned with the future use of their data as a tool for planning and control, and less engrossed with the minute accuracy of past history. Although this transition may seem to be developing slowly, the real significance is that it is happening at all. It is difficult for a man to change ingrained habits in a short period of time. As students learn the basic principles of accounting, great emphasis is put on the accuracy of minute detail. Yet, when these same students are faced with the task of providing management with information that will help to plan and control the future, speed and accuracy within limits become much more important. At this state, the student must re-educate himself to the fact that it is not as important to provide detailed

reports on what has happened in the past as it is to provide fast information about what is happening now and what is likely to happen in the future. The type of information required by managers is not necessarily precise, but it is reasonably correct within certain limits or possibilities that are known to the people using the information. This is a difficult transition for many accountants to make. They have been taught accuracy and precision. Now they must sacrifice much of this for reports that are reasonably accurate but fast.

The training of accountants often leaves students with the idea that the preparation of reports is an end in itself, whereas the real importance of accounting is in the use that management can make of the information provided. The student has been taught to classify and total the realities of the past. Now he must use his imagination and present the probabilities of the future. Initially, this change in demands leaves accountants with a feeling of insecurity. However, in dealing with the future, they soon gain a broader perspective of the purpose and working of a business. This new knowledge then opens up a vast field of challenge wherein the accountant can use his training and ability to the much greater advantage of himself and his firm.

As accountants become more aware of management's needs and of how to provide the information that will fill these needs, they also learn about the functions of management and thus become more valuable as potential leaders of the organization.

THE AGE OF MASSIVE ENGINEERING

by Paul O. Gaddis

Harvard Business Review, January-February, 1961

On the frontier of our corporate environment, we are no longer in the Age of Mass Production; rather, we are in the Age of Massive Engineering. Now recently developed knowledge is being massively used to determine specific solutions to new problems in all fields. This is not to say that mass production will no longer be the keystone of our material prosperity. But it does strongly suggest that it is time to concentrate our resources on the management frontier where problems are profound and management knowledge is all too limited.

The dynamics of our technological economy have been extruding a new group of managerial functions into eminence. Importantly they are not the same functions that have been emphasized, studied, and restudied during the past 70 years.

They do not stem from any of the rational systems that apply to mass production—such as:

The painstaking analyses of the manufacturing methods introduced in the 1890's.

The evolution of modern industrial engineering.

The development of controllership with its improved accounting methods (such as the break-even charts started by E. I. DuPont de Nemours & Company in its famous Board Room early in this century).

Clearly, we are in a millennium of new management functions that must evolve in answer to the management problems of massive engineering.

SYSTEMATIZING REPORTS FOR MANAGEMENT CONTROL*

by F. B. Campbell,
Secretary-Treasurer
Somerville Industries Limited,
London, Ontario.

Control reports for management are effective only if they stimulate profit-producing action. In this article the author presents a case study of the reporting system in use in his company based on the maximum delegation of authority and responsibility to the people who are in a position to control that action.

AS A PREAMBLE to this paper, I would like to enunciate certain management and control principles;

1. A sound management control system is aimed at stimulating *ACTION*—it must not only report, it must *stimulate* action.
2. It must establish *standards* of performance; standards which should be aimed at the *future* as well as the present; standards which should continually be *revised* and kept as up-to-date as possible.
3. *Creation* of performance standards must have the greatest possible *participation* by as many employees as possible; as many *people* as possible should be involved in the process.
4. A sound management control system should focus attention and stimulate action on significant *deviations* from performance standards.
5. Management must operate by objectives—*ALL THE WAY DOWN THE LINE*. *Everyone possible* should be confronted by *personal performance objectives*.
6. *Action* must be determined by *line* personnel; not by staff personnel.
7. Authority for day-to-day operating decisions must be *as close to the scene of action* and *as close to the level of action* as possible.
8. The *reporting* process must be as *close* to the scene of action as possible—and the reporting must be *prompt*—and it must be *simple* and *clear*—and it must facilitate *corrective action* on *deviations* from *objectives*.

In other words, the control process must be linked up with *people*, at every level of operations.

Reports are only a *means* to profits—of themselves, they are not profit producing. Profits only occur through reports if people who read them are stimulated to take, and are in a *position to take*, profit-producing action!

*A paper given at the 20th Annual Ontario Conference of S.I.C.A., held in Ottawa October 19-20, 1961.

Frank B. Campbell is Secretary-Treasurer and Controller of Somerville Industries Limited and its subsidiary companies. He is a graduate (B.Com.) of McGill University and a member of the Institute of Chartered Accountants of Quebec. He commenced his business career on the internal audit staff of Canadian Industries Limited and subsequently held positions as Treasurer of J. R. Booth Limited and Assistant Treasurer of the E. B. Eddy Company. During the past twenty years, his experience has been in industrial accounting with particular emphasis on cost accounting and multi-plant decentralized management control. Mr. Campbell is a member of the Chartered Accountants' Club of Western Ontario and the National Office Management Association.

DIFFERENT LEVELS OF MANAGEMENT REQUIRE DIFFERENT TYPES OF INFORMATION

I would like to quote a few paragraphs from a book entitled *Executive Action* by Learned, Ulrich & Booz of the Harvard Business School.

"Most control systems involve a routine procedure for gathering at the working level certain specified information on current operations. This information may be expressed in dollars, time or physical units. At successive levels the information is consolidated, and at the highest levels it is summarized in reports for top-level review. The function of the system is to give information in sufficient detail at each level so that necessary inquiry can be made or action taken by the people most directly concerned. At each stage the information usually is compared with a standard or quota.

"The effectiveness of a control system is in large measure determined by the extent to which it has been incorporated in to the daily routines and expectations of the personnel affected by it. *Control statistics are obtained primarily at the working level. Information on past operations merely describes what is already beyond change.* The control system becomes effective only when it enters the thinking of all participants, showing them what is expected of them and allowing them to show their capacity in performance. To approach this ideal, a long period of discussion, argument, and adjustment is usually necessary.

"Control systems prove to be most effective when designed around the needs of all personnel involved. The greatest need for detail is at the lowest level. Consultation with personnel reveals their needs and brings their knowledge and skills to bear upon the design of the system; it provides for developing a better understanding of their jobs, and facilitates the process of acceptance of the control system.

"The reactions of factory and sales people to standards are particularly important because these are the people on the 'firing line'. The foreman exercises more effective control over manufacturing cost than the manufacturing vice-president. And it is the salesman who decides whether to visit another customer late in the afternoon, or to call it a day. The decision is his much more than it is the sales manager's.

"Briefly then, the most effective control is exercised at the working level. *It is not the result of home office charts, analysis, or masterminding. It cannot be ordered into existence or injected from outside a work group.*

"The major human problem in connection with a control system is that of giving adequate meaning for the people who must work with it. A top executive cannot safely assume that any report or standard means the same thing to subordinate personnel that it means to him. The success of control systems in achieving certain results depends more on the development of a common understanding than on the clarifying of technical details."

This thinking is very aptly supported by a paragraph from a 1950 speech by Nelson McCully, Controller of Bauer and Black.

"Management reports are methods by which one individual, or group of individuals, performing the function of control, informs another individual—or group of individuals performing the function of management—of the facts regarding a specific business. Hence, since management reports are methods of communicating between real people regarding the activities and accomplishments of specific people, there can

be no general business standardization of either the form or content of these reports. The emotions, thoughts and actions of people cannot be standardized; *reports should be prepared with the specific people who are to receive the reports in mind.*"

The final quotation is from the report *Management Accounting* prepared by the Anglo-American Council on Productivity.

"The higher level, the less frequently are regular reports required, since the reports for top management are chiefly for the purpose of planning and control. At lower levels reports are required more frequently, since they are designed towards immediate action.

"As a general rule it may be said that the vice-president of manufacturing, at one extreme, requires regular monthly reports, while the foreman at the other end requires daily and hourly reports."

To summarize, then:

- (1) Reports issued to each level of management must be suitable for useful action by that level; the lower the level, the greater are the (a) detail, (b) frequency, (c) simplicity, (d) individual variation of content.
- (2) Wherever possible, some measurement of actual performance against a "standard", "target", or "ideal" must be available.
- (3) A report is not necessarily a part of the formal financial statements of the company. Most of the really useful data used by management are *not* a part of the profit statement or balance sheet—they are more informal, more flexible, more up-to-date, more truly representative of conditions; they are *more useful*.

We, as accountants, are often guilty of giving the impression that we feel the business we work in is operated so that we may prepare *tidy, precise, "financial"* reports depicting the results of each year's efforts.

No philosophy could be further from management's *control* objectives. It is true that managements wish to present tidy, precise, financial reports to the investing public. But these reports are not for *control* purposes.

REPORTING FOR MANAGEMENT CONTROL IN SOMMERVILLE INDUSTRIES LIMITED

In this section, I shall attempt to describe what we have done (in Somerville Industries Limited) to systematize our reports.

Overall operation is divided into several divisions, each with its own general manager;

- our three packaging divisions, each with its own management, with plants in Montreal, Toronto, London and Winnipeg.
- our automotive panel division with plants at Scarborough and Windsor.
- our display division.
- our two subsidiary companies in the plastics field—Paulite Plastics Co. Limited and Impac Containers Limited.
- a specialty paper products subsidiary, N. V. Morrison Limited.

Insofar as possible, each of these operates as a separate financial entity. Each of them:

- (a) prepares its own operating budgets
- (b) prepares its own sales forecasts

- (c) prepares its own profit forecasts
- (d) prepares its own financial statements
- (e) controls its own costs
- (f) has its own banking arrangements and bank financing.
- (g) operates, and is responsible for:
 - (i) its own credit and collection process
 - (ii) its own salary and payroll records
 - (iii) its own accounts payable system
 - (iv) its own purchasing
 - (v) its own selling

Most of the time the delegation of responsibility for these functions is complete. From time to time, assistance is given on different phases of these activities by staff personnel from head office but this assistance is kept to a minimum.

Every effort is made to maintain divisional autonomy. Delegation of control and financial responsibility to the operating divisions is as complete as possible.

YARDSTICKS

Throughout this process of decentralization and delegation are certain *threads of control*—certain *standardized patterns* of reporting plans, and results, against certain *YARDSTICKS*. These yardsticks are briefly as follows:

Yardstick #1 — Operating Budgets

Annually, every foreman and every department head budgets each of the operating centres under his control. These budgets are, for the most part, based on normal feasible activity. This helps avoid distortion of selling prices caused by each "boom" or "bump" in the national economy. The budgets are based on standard data; they are flexible according to activity.

Labor utilization, particularly on large or complex equipment, is analyzed very carefully with the help of time-study and standards personnel. There is a tremendous drive—(a constant detailed and painstaking effort)—to maintain and improve efficiencies.

Every budget is, however, fully attainable, and is reviewed by the division management and by head office personnel for approval. The budgets are prepared by the foremen and superintendents and department heads. They are their own creation. They are attainable. They are expected to be adhered to under normal operating conditions.

Yardstick #2 — Sales Forecasts

Sales forecasts are prepared by each sales unit and each salesman in January, July and October of each year. This work, though tedious and time-consuming, is vital to success of our *planning* efforts. These forecasts serve two main purposes:

- (a) they permit each man to assess his own efforts—and *to have his plan and his efforts assessed by his superiors.*
- (b) They provide the division managers with the necessary tools to prepare divisional profit forecasts.

Yardstick #3 — Profit Forecasts

Each division prepares profit forecasts every January, July and October—as well as a "last minute" forecast late in December. These forecasts are based on the sales forecasts and the operating budgets for the division. They constitute the division's

expected plan of action for the balance of the year. They are the current "operating manual".

These divisional forecasts are forwarded to head office along with any pertinent explanations and additional information the division management feels is warranted for a proper understanding of the expected operating results. At head office, all the divisional forecasts are consolidated, and a report is written for the management committee commenting on, and reviewing, the expected total results for the whole corporate activity.

CONTROL FACTORS

Our "control" factors operate much the same way as our "yardsticks" operate. The initial action is taken at the lowest level. At the lowest level the control is frequent and informal. As the process of control reaches higher levels, it becomes more infrequent and also more formal.

Control #1 — *Timekeeping and Labor Statistical Control*

Almost all our operations are covered by standards. Our search for constantly greater efficiency is spear-headed by our industrial engineering people. There is an industrial engineer at each major plant. He is not only responsible for setting work-standards; he is also in charge of all time reporting.

Most of our time reporting is accomplished right out on the factory floor. It is done hourly and daily. I think it is probably more useful to our foremen than any other control that is available to them.

Our departmental time reports are hand-written—they are simple—they are analytical—they are prompt—they are available at the point of use.

Control #2 — *Monthly Cost Reports and Cost Meetings*

Regular monthly cost meetings are held by the operating management of each division. At these meetings all deviations from expected results are reviewed in detail and explained by the foreman. There is constant attention paid to cost reduction and improvement of efficiency—and the attention is given at the level where it is most effective, the foreman, the superintendent, and the department head.

At these meetings, the foreman's status as a manager is emphasized. Management's main function at these meetings is to assist the foreman to attain or improve on his budget. There is little criticism of past results. The emphasis is on the future.

Minutes of those meetings, together with the cost reports themselves, are invaluable aids to successive budgets.

These cost meetings are chaired by the operating management. The cost accountant's role is that of secretary. The costs being controlled are not his costs, they are operating costs; he is merely facilitative to cost improvement. His status is subordinate.

Control #3 — *Monthly Financial Statements*

Every month each division prepares financial statements outlining operating results and comparing these with last year's experience, and with the results expected in the forecast. The statements include comments and explanations by the divisional management where necessary.

These divisional financial statements must, of course, be standardized in form so that they can be used for consolidation purposes. They contain

- a comparative profit analysis
- a comparative balance sheet

- a comparative schedule on inventories
- a comparative schedule on accounts receivable.

In addition, they include comments on major variances and major deviations from expected goals. These monthly divisional statements are consolidated and a monthly report is issued reviewing the total company results.

Control #4 — *The Management Committee is the Main Control Factor*

This is chaired by the president; on it are the division managers along with the general sales manager, the public and industrial relations manager, the vice-president in charge of production, and the chief financial officer.

Along with its other functions, it acts as a "board of review" of the divisional results and the total corporate results.

Every member of the management committee receives a copy of every divisional forecast and of every divisional monthly financial statement, as well as the consolidated reports for the whole corporation.

These results are reviewed by each division manager in detail at each monthly meeting of the management committee. There are no secrets; full disclosure of all facts is encouraged; it is a team effort.

CHECKS AND BALANCES

In addition to these three yardsticks of:

1. Budgets
2. Sales Forecasts
3. Profit Forecasts

and our four control factors of:

1. Labor Cost Analysis
2. Monthly Cost Meetings
3. Monthly Financial Statements
4. Monthly Management Committee Meetings.

We also have the usual "checks and balances" required to ensure that the system runs smoothly.

1. Internal Audits

Although each division is autonomous and each divisional accountant responds directly and completely to his divisional manager, periodic divisional audits are necessary to ensure that financial reporting of results is sufficiently standardized to permit easy consolidation. Each plant is audited at least once each year. The audit is done by the persons responsible for overall consolidation of results. No audit report is issued without prior approval of the local management. All reports are positive; where weaknesses are found, the report must state what corrective actions have been taken.

Incidentally, we have our consolidated financial statements prepared by the sixth working day of each month.

2. Accounting Conferences

When we first decentralized our accounting to the divisions, we had semi-annual accounting conferences of all the divisional accountants to tell them what "head office" wanted; now we appear to be holding them to find out what the divisions want. This "from the grass roots up" philosophy is paying rich dividends. The operat-

ing divisions get the detailed control information *they* want to make *their* profits bigger. Profits are made by divisions—not be “head office”.

The accounting conferences merely ensure that we achieve *reasonably* standardized reporting without interfering with divisional freedom of action.

Most of the agendas for our divisional accounting conferences emanate from the divisional accountants.

Once again, our reporting methods revolve around *events* and *people*—the system, insofar as we can make it, is subordinate to the goal of profit making.

3. Forms Control

In view of our decentralized type of operation, our forms control program is much more elastic and flexible than in many companies. It is facilitative rather than repressive. Only our “financial reporting” forms are fully standardized.

Most of our internal reports are fairly “homespun” affairs—the people who use them like them that way. We think this is important—that people who want certain data, get them the way *they* find most useful.

4. Major Expense and Capital Expenditure Control

We achieve this by a system of job orders. Expenditures of an extra-ordinary or capital nature must be covered by job orders. These orders must be approved, above certain levels, by top management.

CONCLUSION

The above review, due to its brevity, has only “hit the high spots”, but I think it is sufficiently complete to provide a proper appreciation of several fundamental principles:

- (a) Everybody at our company and its subsidiaries is part of a “team effort”.
- (b) Responsibility and authority are delegated to the greatest possible extent.
- (c) Decision-making occurs as close to the scene of action as possible.
- (d) Everyone, subject to the combined review of the management committee, “writes his own ticket”. Then he reports on *his* results against *his* own yardstick.
- (e) His results are fully known by his associates, and these associates hear the full details of his plans and expected results for the future—as well as the details of his success or failure in achieving them.

As a result, our accounting efforts are facilitative and informative, rather than directive. Control is achieved by *management from* the accounts rather than *by* the accountants.

This type of management also means that *responsibilities* are shared by *all* classes of employee and by *every* individual according to his station.

Control of inventories, of credit, and of collections, is not *centralized*—it is *decentralized* to each *person* in the management chain. We, each of us, are partners in a business enterprise—the whole of it and every aspect of it, to varying degrees. And each of us is a “cog in the wheel”—each of us bears his load, each of us is necessary to the combined effort.

There are few companies that place such emphasis on the worth of each individual job. The moral of this is obvious. Profits are made by *people*, NOT by reports or by systems.

The Economic SCENE

by J. V. Poapst,
*School of Business,
University of Toronto.*

CHANGES IN CONSUMER EXPENDITURE

IN MAKING and maintaining demand in the economy, the consumer is king. In terms of constant (1957) dollars, personal expenditures on consumer goods and services amounted to 69% of Gross National Expenditure during the first half of 1961. This importance of the consumer has increased in recent years. In 1956 his share of GNE (1957 dollars) was only 62%. After 1957 the volume of business gross fixed capital formation declined, thereby ceasing to support the economy in the way it had in the early 1950's. However, in no year since 1948 has the volume of personal expenditures on consumer goods and services failed to rise.

In recent years the growth in volume of consumer expenditures has become relatively more dependent upon growth in population and relatively less dependent upon rising standards of consumption. This is indicated by the change in relative rates of growth in the volume of personal consumption expenditures and population. During the period 1948-56 the volume of personal consumption expenditures grew at a rate which was 1.55 times the rate of growth of population. In the period 1956-60, however, it grew at a rate of only 1.32 times the rate of growth of population. In this period the standard of consumption, as measured by the volume of expenditures per capita, rose by only 3%. Personal expenditures on consumer goods and services in constant (1957) dollars per capita rose from \$1,211 in 1956 to \$1,250 in 1960. Although more statistical work would be necessary to establish the point, this change in the importance of the two factors influencing demand suggests that, in general, markets in consumer goods and services have become relatively more dependent upon additional buyers and relatively less dependent upon increases in purchases by existing buyers. The figures more than suggest that our economy has made little progress in recent years.

The singular importance of the consumer in making and maintaining demand is revealed even more clearly in quarterly expenditure data that have been adjusted for seasonal as well as price variation. In a total of 22 periods from the start of 1956, the seasonally adjusted annual rate of personal expenditures on consumer goods and services in 1957 dollars declined in only one quarter. That was the first quarter of 1961. For the same period the number of quarter-to-quarter declines was 12 for business gross fixed capital formation, nine for exports of goods and services, and seven for holdings of inventories. At seven, even the number of quarterly declines in government expenditures far outnumbered that of consumers.

There are marked differences in stability between major components of personal expenditure in consumer goods and services. In 22 quarters since the start of 1956 seasonally adjusted constant (1957) dollar personal expenditures on durable consumer goods declined in 11 quarters. For non-durable goods there were declines in only three quarters and for services there were no declines.

With no interruption in their growth, the volume of expenditures on services has increased faster than that of other consumer outlays in recent years. From 1956-60

the rise for services was 19% compared to 14% for non-durables and 3% for durable goods. This more rapid growth for services seems to have caused some misgivings about the Canadian economy, being viewed as evidence of an undesirable increase in the demand for an easy life. It is difficult to establish a basis for such concern apart from the long-standing popular misconception that goods are innately superior to services. Actually, the proportion of the total volume of consumer outlays comprised by services rose only from 35.7% in 1956 to 37.0% in 1960. And the proportion in 1960 was approximately the same as in the late 1920's.

Although small, the trend to services in recent years has a possible implication to sellers of durable and non-durable goods. The sale of any goods can be viewed as a combination of the goods and some amount of service. The faster rate of growth of services suggests that increasing the service associated with the sale of goods could have a place in marketing strategy.

The table below shows changes in the volume of consumer expenditures during recent quarters. The notable features are the virtual equality in growth during the last four quarters between purchases of non-durables and services, and the near absence of growth in purchases of durables.

**QUARTERLY CHANGES IN SEASONALLY ADJUSTED ANNUAL RATES OF
PERSONAL EXPENDITURE ON CONSUMER GOODS AND SERVICES**
CONSTANT (1957) DOLLARS, 1960 AND 1961
(\$ millions)

Goods or Service	Change from Previous Quarter						Change Last 4 Quarters
	1960				1961		
	I	II	III	IV	I	II	
Non-Durable Goods	−20	296	28	−48	60	236	276
Durable Goods	16	−8	−72	324	−244	48	56
Services	4	120	48	64	80	64	256
TOTAL	—	408	4	340	−104	348	588

Source: DBS—National Accounts: Income and Expenditure, first quarter, 1961 and also second quarter, 1961.

Altogether, the consumer has been acting in a way that promotes his own employment. He has accounted for an increasing proportion of the volume of GNE in recent years, and the proportion of his own expenditures devoted to the labor-using service industries has also risen. Moreover, in 1960 and the first half of 1961, net personal savings declined, not only in relation to net disposable personal income (current dollars) but absolutely. This diminished the amount of private and public investment necessary to maintain the level of total expenditures and employment.

The Thorne Group Ltd.

MANAGEMENT CONSULTANTS

111 Richmond St. West, Toronto 1, Canada — EM. 3-0661

CONTRACT MAINTENANCE— MANAGEMENT'S KEY TO INCREASED PROFITS

by Jerard A. Kent
Assistant Treasurer,
Wellman-Lord Engineering, Inc.,
Lakeland, Florida.

Maintenance is one area in which production costs can be greatly reduced, the author points out. In addition to lower maintenance costs, the use of a contract maintenance program can result in more skillful maintenance, speedier work completion, and more convenient scheduling. This article presents the case for contract maintenance, showing how it saved the Florida phosphate industry hundreds of thousands of maintenance dollars in recent years.

TRENDS during the past few years in the phosphate industry have presented serious problems to management in its never-ending struggle to continue reasonable profits and adequate returns on capital investment. Increased labor costs, higher material costs, more rigid product specifications and stabilization of prices caused by increased competition from farm cooperatives and foreign producers have slowly decreased the profit margin.

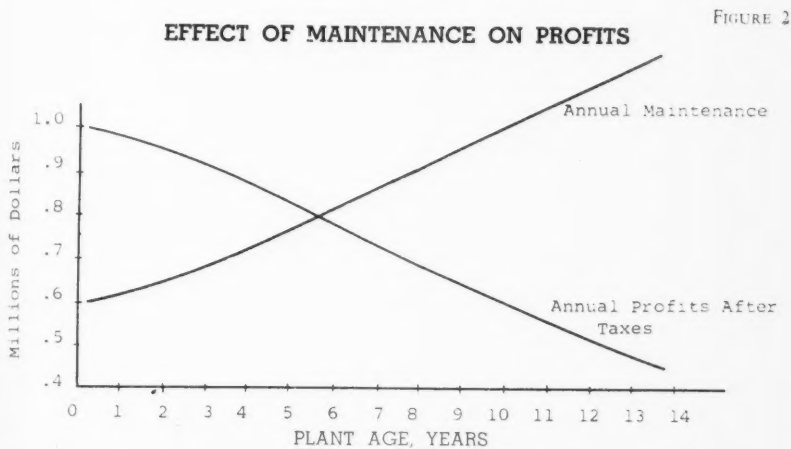
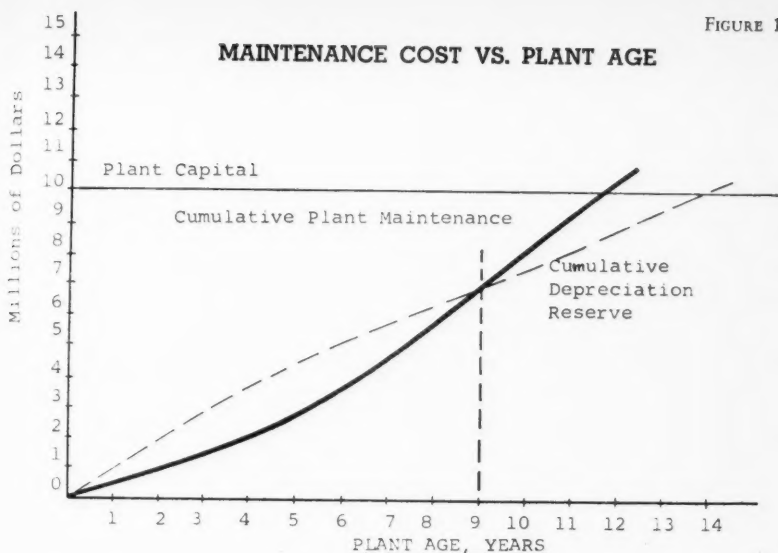
This situation has emphasized the need for lower production costs—a need which is constantly increasing. Generally, little can be done to reduce production costs greatly, beyond maintaining an efficient plant operated by highly-trained and experienced personnel. However, there is one area in which costs *can* be substantially reduced—MAINTENANCE.

A program which provides a ready solution to this industrial problem is contract maintenance. Such a program, developed and provided by our company, has resulted in savings of hundreds of thousands of maintenance dollars for several Florida phosphate companies in recent years. The information and figures contained herein are based on these phosphate contract maintenance programs.

Before the start-up of a new plant, various items of production costs are always thoroughly studied and evaluated and fairly well stabilized. However, as time passes and the plant gets older, certain costs show a gradual, consistent increase—and one such important cost is maintenance. This increase is due to higher costs of labor and materials and the eventual requirement of replacing major items of equipment.

In the phosphate industry, the annual maintenance costs soon exceed the depreciation rate and the total cumulative maintenance costs exceed the initial capital investment. This trend has been retarded appreciably, however, by the use of contract maintenance. Figure 1 indicates the rising trend of maintenance costs throughout the life of the plant, while Figure 2 points up the problems of maintaining a profitable operation. Note that these figures are based on a plant operating on an initial capital investment of ten million dollars.

Jerard A. Kent is Assistant Treasurer of Wellman-Lord Engineering, Inc. of Lakeland, Florida. Mr. Kent is a graduate of Tulane University and was with Kaiser Engineering, Inc. prior to joining his present company.



LABOR COSTS ARE PRIME TARGET FOR REDUCTION

Now, how has our company's program managed to reduce maintenance costs in the phosphate-chemical industry? It should be noted immediately that the biggest area of savings with contract maintenance has been in labor, although long-range savings on materials were also realized.

Take the typical plant maintenance dollar. Seventy cents is expended for materials and 30 cents for labor (Figure 3). Now analyze the breakdown of the maintenance labor dollar (Figure 4). Base labor rates take 52 cents; holidays, two cents; vacations, two cents; fringe benefits, five cents; premium pay, 12 cents; overtime meals, one cent; overhead, 26 cents. With this information two questions immediately arise: Do plants really obtain their dollar's worth with plant maintenance labor? If not, what is to be gained by the use of contract maintenance? Our company's experience provides answers to these questions.

FIGURE 3
THE MAINTENANCE DOLLAR

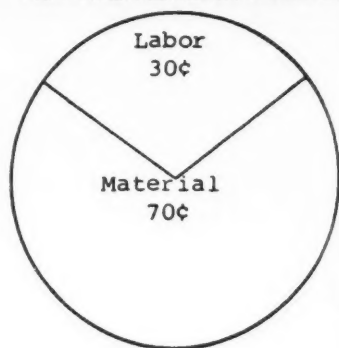
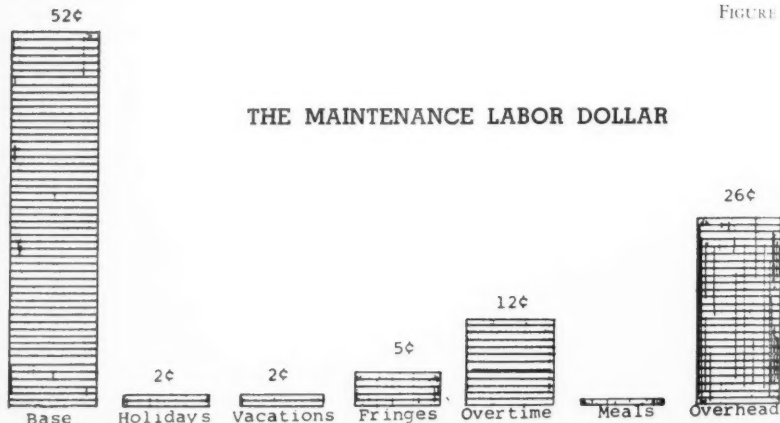


FIGURE 4



Current studies in the heavy chemical industry indicate little progress has been made in recent years in improving the productive effort of maintenance labor. An analysis of plant maintenance labor (Figure 5) reveals that actual productive effort involves only 40 per cent of the time on the job, with waiting for materials or supervision taking 25 per cent, travel within the plant 10 per cent, and non-productive effort, 25 per cent. Non-productive effort indicates stalling, slowdowns, attempts to create work, or plain laziness. These figures, based on our experience, prove that while management is paying for the whole pie, he is enjoying but one mediocre slice.

What are the actual labor costs? For a typical case, consider a maintenance mechanic whose base pay rate is \$2.50 per hour. When all the costs in Figure 4 are added, this man costs the plant \$4.81 per hour (Figure 6). The cost of his productive effort without overhead is then determined to be \$8.90 per hour, with overhead \$12.02

per hour. Obviously, this is an extremely high cost for 100 per cent effective labor. And while this example is fairly typical of the heavy chemical industry, in some plants it is conservative.

These costs can be reduced with contract maintenance. How? There are a number of factors involved which can be eliminated, creating savings.

FIGURE 5

PLANT MAINTENANCE EFFICIENCY

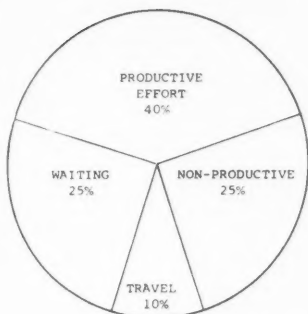


FIGURE 6

HOURLY COST

Basic Rate	\$2.50
Holidays	.09
Vacations	.09
Fringes	.24
Premium Pay	.59
Overtime Meals	.05
Overhead	1.25
	<u>\$4.81</u>

$$\text{Cost of Productive Labor Without Overhead} = \$3.53 = \$8.90/\text{Hr.}$$

.40

$$\text{Cost of Productive Labor With Overhead} = \$4.81 = \$12.02/\text{Hr.}$$

.40

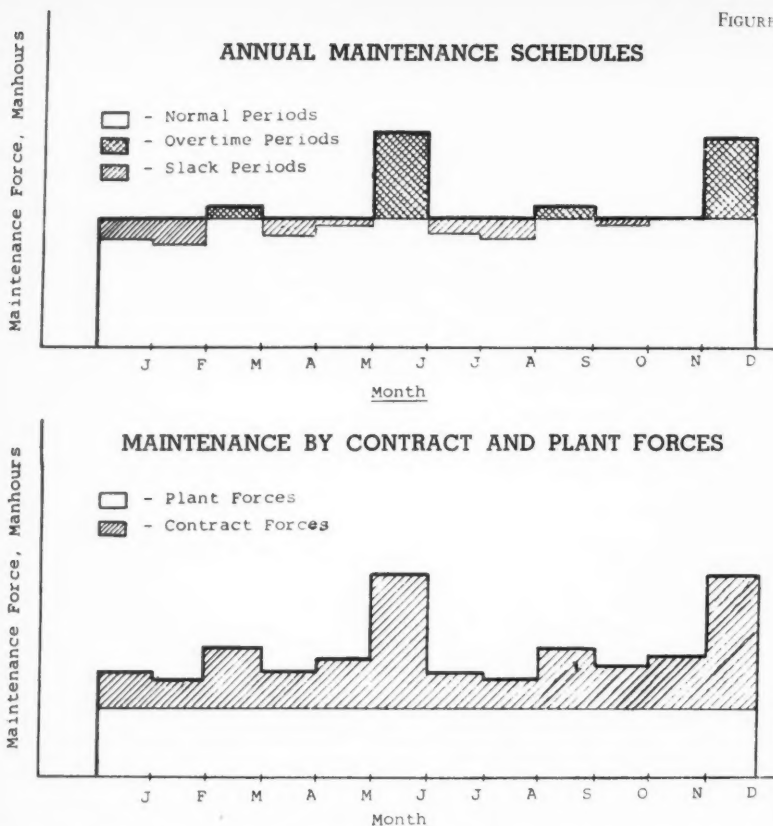
HOW CONTRACT MAINTENANCE REDUCES LABOR COSTS

Turn back to Figure 4 in order that contract maintenance may be injected into the picture. True, the base labor rate to management for contract maintenance will be higher than is shown in this figure; however, this variance will be more than offset by the available savings. For instance, with contract maintenance, no payment is made for holidays, vacations or meals, thereby eliminating these items. Fringe benefits and fee are only about 20 per cent of the base rate compared to 50 per cent for normal plant maintenance overhead. Thus, further savings are achieved.

Now to consider that cost which frequently proves to be a major problem to management—overtime pay. Our company has found contract maintenance can reduce this cost about 30 to 40 per cent. Here's why. In order to maintain an adequate and reasonable maintenance schedule and to minimize downtime, it is necessary to have a much larger maintenance force than is usually required. At the same time overtime pay is necessary to meet peak work loads for emergency repairs, start-ups and annual turn-arounds. By having a small plant maintenance force directing their basic effort in the area of preventative maintenance and using contract maintenance to meet peak work loads, appreciable savings are realized. (Figure 7).

Certain questions occur to alert plant management. If plant maintenance forces are of adequate size to handle emergency situations with reasonable overtime periods,

FIGURE 7



what are they doing during normal operating periods? Are they busy at all times to the best advantage, or are they creating work? Dr. C. Northcote Parkinson in a recent publication entitled *Parkinson's Law*, notes that "work expands itself to fill the amount of time allotted for its completion." This thought should arouse great concern among those responsible for production costs.

WHAT ABOUT MAINTENANCE OVERHEAD?

And what about maintenance overhead? Does it continue as before? There is little likelihood that this cost will ever be appreciably reduced.

Actually, the biggest problem is not how to reduce overhead, but how to keep it from increasing. Almost without exception overhead costs increase over a given period whether production increases, decreases or even exists at all.

The moment the maintenance department is created, inefficiency sets in. The urge to survive in a world of competitive employment causes the individual to set to work immediately to build his own little empire, the theory being that the more people he

can install as subordinates, the longer it will take for a lay-off to reach him and the better are his chances of survival or promotion. In going about the establishment of this security, the department head necessarily forfeits a certain amount of personal and department efficiency.

Opportunities of reducing maintenance overhead costs do exist however—particularly during periods of expansion—in the heavy chemical industry. This has been accomplished through:

1. Use of contract maintenance to relieve the bulk of overhead requirements;
2. A rigid policy of no increase in maintenance personnel under any circumstances;
3. Transfer of overhead personnel to duties other than maintenance to fill needs in other departments caused by enlargement of the plant.

HOW DOES EFFICIENCY COMPARE?

Cost comparison has shown contract maintenance to be invaluable to plant management. But what about productive effort? An analysis and evaluation of work-force performance in Florida's phosphate industry provided enlightening information in this regard (Figure 8), especially in comparison with plant maintenance forces (Figure 5).

Efficiency comparisons of plant and contract maintenance forces reveal a decided advantage in favor of the latter. Under contract maintenance, work is planned and necessary materials and supplies obtained before the men go on the job. This is rather difficult in plant maintenance work since the force is on the job all the time.

FIGURE 8

CONTRACT MAINTENANCE EFFICIENCY



FIGURE 9

HOURLY COST

Base Rate	\$3.50
Taxes & Ins. ....	.28
Overtime .....	.35
Travel .....	.14
Welfare .....	.03
Overhead .....	.54
Fee .....	.32
TOTAL	\$5.16

$$\text{Cost of Productive Labor} = \frac{\$5.16}{.75} = \$6.88/\text{Hr.}$$

$$\text{Savings} = \$2.02 \text{ to } \$5.14/\text{Hr. at } 100\% \text{ Efficiency}$$

This single factor has produced 50 per cent savings in time lost due to waiting and in-plant travel to obtain materials. Non-productive effort is further greatly reduced because of the contractor's more flexible organization and experience.

A contractor can remove a man who is not showing his best efforts from a job at any time, while plant union contracts usually prevent the removal of personnel even though they may be inefficient or lazy. Non-productive workers, trouble-makers or persons otherwise undesirable to the client can be quickly eliminated from the job without incurring problems. This has been done.

The overall result of reducing these non-productive factors is an increase from the 40 per cent plant force efficiency to 75 per cent for contract maintenance.

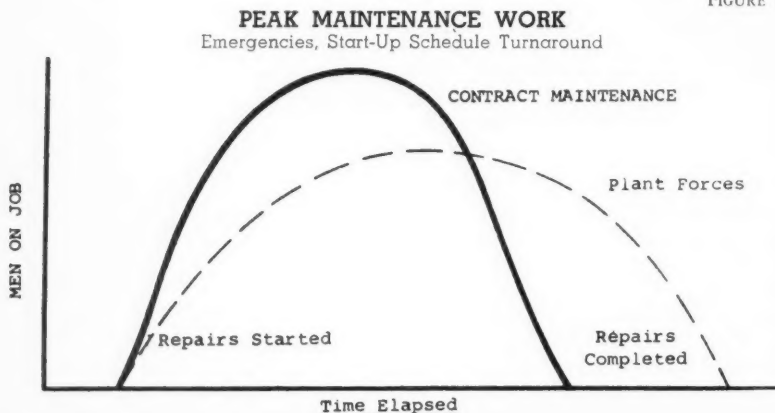
By combining all factors, it was found that actual hourly costs at 100 per cent efficiency for contract maintenance are less than for plant maintenance. Based on a millwright's pay (Figure 9), which is comparable to that of a maintenance mechanic (Figure 5), savings range from \$2.02 per hour with comparable overhead reduction. These savings represent a range of 23-43 per cent.

Figure 10 projects the labor savings which occur through use of contract maintenance in various sized operations. For example, a plant with maintenance labor costs of \$200,000 last year could reasonably expect to gain from \$46,000 (23%) to \$86,000 (43%) annually by utilizing contract maintenance.

FIGURE 10
MAINTENANCE LABOR SAVINGS BY CONTRACT MAINTENANCE

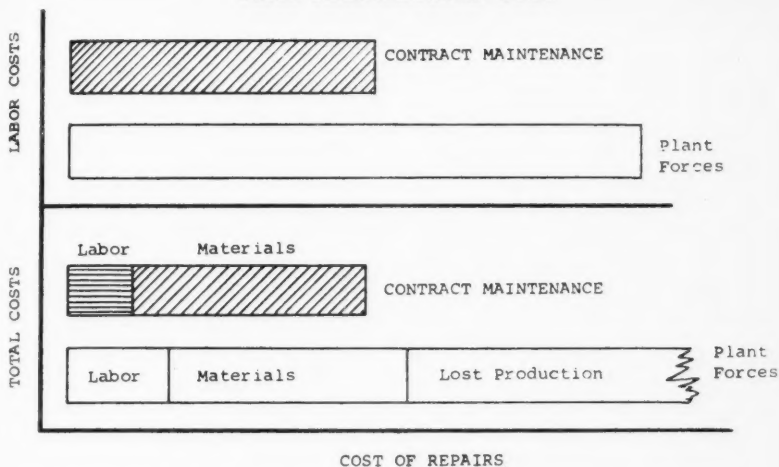
<i>Annual Maintenance Labor Costs</i>	<i>Savings on Contract Maintenance</i>
\$100,000	\$ 23,000 — \$ 46,000
200,000	46,000 — 86,000
300,000	69,000 — 132,000
400,000	92,000 — 172,000
500,000	115,000 — 218,000

FIGURE 11



PEAK MAINTENANCE COST

FIGURE 12



ADVANTAGES OF CONTRACT MAINTENANCE

The savings and advantages of contract maintenance for a specific job such as start-up, scheduled turn-around or plant emergencies are shown in Figures 11 and 12. A contract maintenance force supplies the men, crafts and equipment necessary to complete work more quickly than plant forces, offering at the same time sizeable cost reductions. In fact, in some cases, the savings realized by greater production obtained by reduced downtime with contract maintenance were greater than the savings previously mentioned.

Therefore, the main advantages of contract maintenance are concentrated in four areas of significance to management: (1) lower maintenance costs; (2) superior skills; (3) more convenient scheduling; and (4) fast work completion.

More specifically, the following advantages were realized by companies utilizing contract maintenance:

1. Use of contractor's forces, even at higher base hourly rates, results in substantial savings since efficiency is higher and overtime pay substantially reduced.
2. Necessity of maintaining a pool of manpower larger than normally required to meet maintenance peaks is eliminated, reducing costs of labor, fringes and overhead.
3. Union contracts make it difficult to decrease the plant's maintenance force in times of decreased production. Under contract maintenance, a smaller preventative maintenance force can be established and additional personnel from the outside source utilized for peak requirements.
4. With contract maintenance the proper number of skilled craftsmen are placed in the proper place at the proper time and are kept there only as long as the job requires.

5. Because of the large size of the contractor's maintenance forces, skilled craftsmen operate in more specialized areas than plant forces, performing more rapidly and efficiently.
6. A high degree of efficiency in workmanship is achieved with contractor's specialized equipment, and lower unit costs are obtained through highly skilled craft labor.
7. Quality workmanship is assured because the company is in the position of buyer and the contractor is in the position of seller. Satisfactory performance must be provided by the contractor if he is to retain the relationship.
8. Maintenance by contract takes the guess work out of the plant's maintaining a staff of sufficient size to meet fluctuating requirements and avoids difficulties usually encountered in terminations and transfers.
9. Detailed and accurate costs are always available since construction firms normally gather accurate unit costs of construction, information usually difficult to determine under plant maintenance.
10. Contract maintenance frees plant personnel to concentrate on improving production and preventive maintenance.
11. Large forces of skilled craftsmen can be brought in immediately in case of plant shutdown or breakdown, returning the plant to production with a minimum amount of downtime at minimum cost.
12. Labor board rulings governing the use of construction gates permit employees of a construction firm holding a maintenance contract for emergency repairs, start-ups, and annual turn-arounds to continue work without the necessity of crossing picket lines, even if plant operating personnel are on strike and picketing the plant.
13. With the reduction of company maintenance personnel, comes a reduction in costly retirement and insurance plans, profit sharing programs, vacation scheduling problems, expensive training programs, and many other employee requirements.

It is proven that effective contract maintenance can be a valuable asset to management. There is no doubt that considerable decrease in production costs is available through the proper utilization of this type of program.

PAYNE-ROSS LIMITED

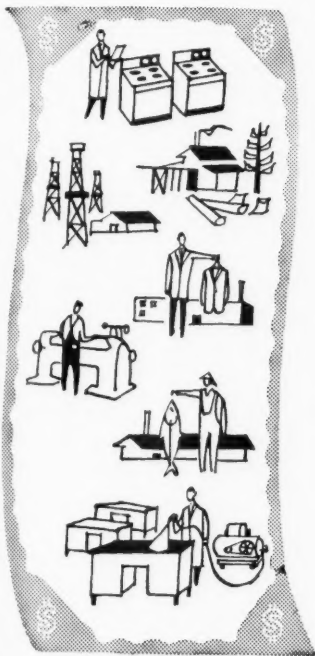
management consultants

TORONTO, 200 University Avenue, EMpire 3-8282
VANCOUVER, 580 Granville Street, MUtual 2-2844
MONTREAL, 550 Sherbrooke St. W., AVenue 8-6193

Affiliated with Bruce Payne and Associates Inc., United States, South America and Europe

FINANCING CANADIAN BUSINESS

through



A distributor of electrical appliances in Central Canada needed a larger warehouse . . . a lumber mill in the B.C. interior had to install a barker and chipper to keep its plant up-to-date . . . a furniture manufacturer in Quebec . . . an oil-well drilling business in Alberta . . . a fish packing plant in Nova Scotia . . . a laundry and dry cleaner in the Prairies . . . a machine shop in Newfoundland . . . these and over 4,000 other small and medium-size businesses in all parts of Canada have been established or developed with term financing from the Industrial Development Bank.

If you are engaged in a business or plan to start one and required financing is not available elsewhere on reasonable terms and conditions . . .

. . . you are invited to write or visit an Industrial Development Bank office (or see your auditor, lawyer or chartered banker) to secure full information about I.D.B. services.

I.D.B. financing is now available to most types of businesses, including industrial, commercial, trade or service enterprises.

INDUSTRIAL DEVELOPMENT BANK

Regional Offices: Vancouver, Edmonton, Calgary, Regina, Winnipeg, Port Arthur, Sudbury, London, Hamilton, Toronto, Ottawa, Montreal, Quebec City, Saint John, Halifax, St. John's.

LOOKING AHEAD

On the horizon for consumers are numerous new products and processes developed as a result of military and government research. Some examples:

Housing. Inflatable buildings of finely woven stainless steel cloth are possible that withstand high temperatures and chemical contamination and are easy to pack and transport. This material was originally developed for parachuting space ships back to earth.

Food. New process of making highly nutrient flour from algae holds special promise for hospital diets and geriatric foods.

Clothing. Specially ventilated garments developed for spacemen may influence the clothes you wear. Also in the offing—protective clothing made of improved plastic fabrics.

Medicine. Equipment developed for space medicine is proving adaptable for use on earth, i.e., heart lung machines which pump and oxygenate blood during heart surgery utilize modified industrial pumps and heat exchangers.

Automobiles. In the more distant future automobiles and locomotives may run without fuel. New power sources developed for space craft utilize solar cells and fuel cells to transform heat, light or chemical energy directly into electric rotary power. (*Can. Bus.*, Oct. 1961)

Soviet oil exports to the Free World by 1970 will rise to 900,000 bbls. daily from 285,000 bbls. in 1959, predicts a U.S. Senate study. The Soviet percentage of world crude-oil production increased from 7% in 1950 to 14% in 1960. In this period, Soviet output quadrupled, while world production doubled and Middle East production tripled. (*Controller*, Oct. 1961)

Increased job security will be main trend of labor bargaining in 1962. The goal will be weekly pay cheques—though not at full pay—regardless of industry shutdowns. Wage hikes will be secondary to this attempt to make the industrial worker virtually into a salaried employee. (*Factory*, Oct. 1961)

Freeze-dried foods will soon be commercially available. Food, including meat and vegetables, is first frozen, then dried. Product may be stored unrefrigerated up to five years and then reconstituted by adding water. Advantages are lightness, compactness, unaffected flavor and nutritional value. (*Fin. Post*, Oct. 14/61)

OF GENERAL INTEREST

Immigration not only swells the market for goods and services, according to government studies, but also provides job opportunities. The latest study made of a group of

6,969 immigrants settling in Toronto and Montreal showed that five per cent had themselves become employers and were providing work for 3,070 people. (*Industry*, Oct. 1961)

New process of shaping metal is by underwater explosion. The metal to be contoured is held over a single die under water and a shaped explosive charge is placed at a well-calculated distance. The resultant shock wave, amplified by water, presses the metal uniformly into the die cavity. The new process can cost as little as one-tenth of cost of former methods. (*Fortune*, Sept. 1961)

Latest vending machines exchange \$5 bills into foreign currency. Two have been installed at New York's International Airport and others, handling up to \$20 bills, have been planned for U.S. major airports. (*Dun's Rev.*, Oct. 1961)

Travellers in Canada spent more here last year than ever before. Travel expenditure by visitors to Canada rose to \$420 million in 1960, a 7.4% increase over 1959's previous high of \$391 million. (*DBS*, Sept. 29/61)

The birds and bees are being studied in a new way. The answers to many puzzling questions of flight and sound are being sought in basic research of bugs, plants and animals. For example, a major U.S. aircraft company is investing \$20,000 a year in a study of the mosquito. The company wants to know how the wing-vibrating mating hum of the mosquito can be heard by another mosquito over background noises of wind, other insects, factory noises, etc., at distances of more than 150 ft. apart. The answer may yield new light on background noises that hamper man-made communications. (*Man. Rev.*, Sept. 1961)

Clerical work week in Canada is shorter on the average than that in the U.S. according to a NOMA survey. While 69% of U.S. companies surveyed maintained a 40-hour work week, 79% of Canadian companies reported their employees worked less than 40 hours per week. (*Office Admin.*, Sept. 1961)

ON THE PERSONAL SIDE

New type of synthetic rubber tire now on the market is said to give 35% more tread wear. Priced about the same as present tires, the new tire is claimed to have extremely high abrasion and aging resistance, resulting in less danger of blow-out. (*Bus. Week*, Sept. 23/61)

On a diet? Sugar contains only 18 calories per teaspoon and can be used as a dieting aid to curb appetite. (*Precis*)

Reversible shirt now available gives twice the wear on collars and cuffs and a clean shirt at a moment's notice. Shirt is completely finished on both sides with a special buttoning and seaming arrangement. (*FP*, Oct. 14/61)

Age 45 is critical time for vision. Beyond this age nearly everyone needs glasses for close work. Typical sign of failing ability to focus up close is holding work farther away to ease strain. (*Can. Office*, Aug. 1961)

Cost of driving a car varies with the amount of driving you do each year. Statisticians have estimated that to drive a car of standard size five thousand miles a year costs 29.62 cents a mile; ten thousand miles, 16.43 cents; 30 thousand miles, 7.64 cents. These estimates are based on conditions in Providence, R.I. and include fixed costs, such as depreciation, as well as operating costs. (*U.S. News & World Report*, May 8/61)

THE ROLE OF THE FINANCIAL EXECUTIVE IN OVERALL COMPANY PLANNING*

by George Moller,
Vice-President and Treasurer,
Robertson-Irwin Limited,
Hamilton, Ontario.

The financial executive's role in overall company planning comprises the translation of actions, events and plans into monetary terms, thus permitting coordination of and comparison between actions of completely diverse nature. This article explores the various facets of this role, stressing that it is also the financial executive's responsibility to keep himself and his staff informed of the latest educational and scientific tools of financial management.

EVERYTHING FLOWS" said the ancient Greeks or, in other words, "Nothing stands still!" The financial officer has the task of picturing the state of affairs of a company at given or set points. Though we may not realize it in our day-to-day routine, this always creates the great difficulty of taking a still photograph of a living organism. Our financial statements are usually prepared as at the close of business on the last day of such-and-such year. By necessity, they are not true any longer when they are being prepared. They certainly do not represent the status of the company on the day when the statement is finally issued. In brief, we are always behind. Accountants are accustomed to the handicap of having to work with still photographs where a film—a moving picture—would be much more representative and probably more to the point.

We hope—venturing into the future—that our role, with the aid of computers, will enable us not only to take moving pictures of the business, but also to present them in the form of a fast-moving set of still photographs. Nevertheless, there is in each one of us the desire to arrest the flow of things and make them appear as standing still, if for no other reason than to perceive the picture properly. One cannot really comprehend fully a moving and continuously changing impression. We have the innate desire to look at a picture, a scene, contemplatively and, therefore, wish to capture it standing still. This may be linked with the human desire for security which is most vividly illustrated in the social security programs propagated and put into effect even in our Western so-called free enterprise world, but particularly in England, where we have had the planning of full security from the cradle to the grave. This inevitably leads to the welfare state.

*Address to the 40th Annual Cost and Management Conference of the Society of Industrial Cost Accountants in Vancouver on June 30, 1961.

Dr. Moller is Vice-President of Robertson-Irwin Limited and Vice-President and Secretary-Treasurer of Robertsteel Limited. He is also a Director of these two subsidiary companies as well as the parent company, H. H. Robertson Company Limited. Educated at the World Commerce University of Vienna (Diploma of Commerce) and at the University of Prague (Doctoris Juris), he is also a Chartered Accountant and a Registered Industrial and Cost Accountant. Dr. Moller is a frequent contributor to professional journals and has lectured in advanced cost accounting and managerial accountancy at McMaster University and the University of Toronto. He is currently Chairman of the Hamilton Control of the Controllers Institute and also of S.I.C.A.'s Executive Development Committee.

PLANNING MUST HAVE A GOAL

Men in business and industry have the responsibility and duty to combat the excessive craving for security, this intention of making things appear to stand still and looking at them in a fixed position. Nobody can really arrest change in our world, short of death. It is, perhaps, trite to say that the business enterprise that stands still, dies. Although we cannot arrest the flow of things, we can influence happenings, developments, and express, through our thoughts and actions, our desire for the direction in which the change should take place. Everybody has a natural desire to improve and to see things change for the better. Improvement of the present conditions is an acceptable general goal.

This faces the financial officer with the necessity of determining, "What is better? What is improvement and, therefore, in which direction should we move?" Despite the tremendous progress in the sciences, particularly the applied sciences, which permits us today to predict the future position of stars and retrieve astronauts from space, we are far from being able to predict with any accuracy, economic developments, be they on a global scale, nation-wide, or even on the small scale of the individual economic entity such as an enterprise or a corporation.

Why? There are two elements which make it difficult to apply science to our imminent task of planning—the time element and the human element. In economics, we are not dealing with events which follow a natural law, but are dealing with the human element interlaced with the time factor. We must admit that humans are rather unpredictable. An economy is the product of human decisions and, therefore, the predictability of these decisions is limited. Nevertheless, we cannot afford to run around aimlessly in circles like caged squirrels. This would surely be a waste of effort and lead to disaster. Planning is by no means an invention of our century. Everyone is planning constantly. The question is only whether planning is carried on systematically or haphazardly.

WHY IS PLANNING NECESSARY?

If we seek a reason for planning in recent texts, it would seem appropriate to quote a few lines about the management of change from "Guides for the Optimization of Industrial Research" by James Gavin, Vice-President of Arthur D. Little, Cambridge, Massachusetts, in *AMA General Research Report No. 30*.

"The survival of today's business enterprises depends directly upon the degree to which they can optimize their use of research, that is, upon management's ability to carry on integrated, long-range planning and to invest its decision-making with the objectivity of science. The industrial manager of today must be as elastic and nimble of mind as the scientist himself, for management is inevitably dependent upon scientific research, its products and its methods of problem-solving."

This is illustrated vividly by the fact that, in the United States, spending for "research between 1776 and 1936, for a hundred and sixty years, was so small as to seem almost insignificant. The cumulative spending over this entire period is estimated at less than five billion dollars. (One hundred and sixty years! Five billion dollars!) During the next twelve years, however, the curve begins to rise. By 1948, the figure is up to twenty billion dollars; then the curve goes steeply up. Between 1948 and 1958, the graph shows we spent over twenty billion dollars, and in 1955 alone, we spent over four billion dollars on research, and in 1958, we spent more than twice this amount, (or eight billion dollars in one year). If this trend continues, we are involved in a geometric expansion."

This should suffice to show why planning is necessary. Without planning, this research would not take place because business management would not be willing to spend these tremendous amounts on it.

In planning, we secure a road map. If we are travelling and get a routing from our automobile club, the envelope bears the warning, "Routings and information obtained in advance of departure are subject to change! Members are advised to phone or visit the nearest automobile club office to verify conditions before continuing the trip." This warning merely points out that conditions of today may not exist tomorrow, and although planned changes may be reported, other changes may have occurred which we find only on arrival at the point of impact—and that often can be taken quite literally.

PLANNING FUNCTIONS OF THE FINANCIAL EXECUTIVE

Let's start with a definition of *planning*. Webster says: "*Plan*—a drawing on paper showing the outline and construction of anything, as a house, a scheme, or project." Planning could be described as the conscious, systematic making of present decisions on future actions. Much more could be said about the intricate process of planning from its traces in the animal world to its importance for national survival in the space age, but we must direct our sights to the financial officer and the investigation of his role in overall company planning.

Probably the best definition of a financial officer, particularly the chief financial officer, can be found in the publications of the Controllars Institute of America. This is the leading organization in the world for top financial executives. To become a member of this Institute, one has to be, at least for one full year before his application can be considered, the top financial officer on the policy-making level of an enterprise with a minimum of two million dollars responsible capital. The name "Controllars Institute" will probably disappear this year and be replaced by "Financial Executives Institute." The titles which are usually used are: vice-president—finance, vice-president and controller, vice-president and treasurer, or simply controller or treasurer.

The functions of the controller are defined in Exhibit A. Let us look particularly at the first function, charging the controller with *establishing*, coordinating and administering as an integral part of management, an adequate *plan for the control* of operations. Such a plan comprises profit planning, programs for capital investing and for financing, sales forecasts, expense budgets, and cost standards, together with the necessary procedures to effectuate the plan. In short, the financial officer with his department and assistants is charged quite obviously with a role in the planning function.

Here, we should distinguish between forecasting and planning. Forecasting is the attempt to determine a future event on the basis of coordinated, collected information available to the forecaster. The forecaster is, or could be, a person who has nothing to do with management of the enterprise for which the forecast is being prepared. The forecast should be an objective prediction. For example, organizations such as the Econometric Institute of America forecast the output of cars for the coming year or five-year period for the whole industry, and not just for the individual producer.

Planning, on the other hand, is decision-making as to what future developments

FUNCTIONS OF A CONTROLLER

(Current statement as developed by the Controllers Institute of America in its brochure, "Planning our Institute's Future," 1961.)

1. To establish, coordinate and administer, as an integral part of management, an adequate plan for the control of operations. Such a plan would provide, to the extent required in the business, profit planning, programs for capital investing and for financing, sales forecasts, expense budgets and cost standards, together with the necessary procedures to effectuate the plan.
2. To compare performance with operating plans and standards, and to report and interpret the results of operations to all levels of management and to the owners of the business. This function includes the formulation of accounting policy, the coordination of systems and procedures, the preparation of operating data and of special reports as required.
3. To consult with all segments of management responsible for policy or action concerning any phase of the operation of the business as it relates to the attainment of objectives and the effectiveness of policies, organization structure and procedures.
4. To establish and administer tax policies and procedures.
5. To supervise or coordinate the preparation of reports to government agencies.
6. To assure protection for the assets of the business through internal control, internal auditing and assuring proper insurance coverage.

are to take place in the entity for which the plan is being made, based, of course, on the available forecast. As opposed to forecasting, which is a statistical undertaking projected into the future, planning is decision-making as to what should happen because it is so devised in the individual organization; it requires, therefore, a determined *effort* in a predetermined direction. The decisive planner in every enterprise must be the top executive. The financial executive's role comprises (as it is with statements of every kind) the translation of actions, events and plans into monetary terms, thus permitting coordination of and comparison between actions of completely diverse nature. The monetary unit, the dollar, is the common denominator in this effort.

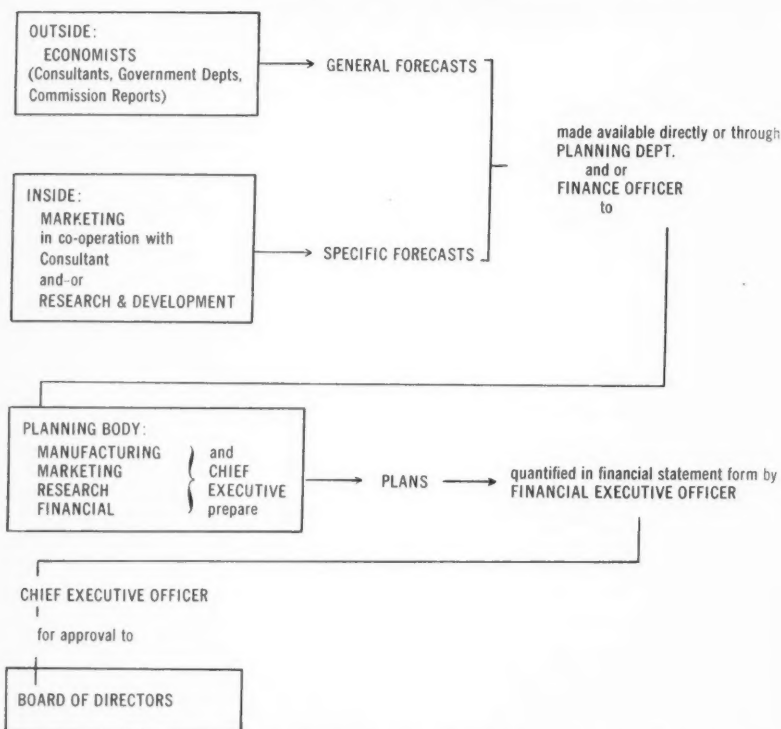
Quantification of plans requires their expression in financial terms. Operating plans frequently appear, therefore, in the form of projected profit and loss statements.

ORGANIZATION FOR PLANNING

A simplified chart (Exhibit B) shows us the organization for planning in the *average* enterprise, exclusive of the giant corporations with special planning departments. Often, though, these planning departments report to the top financial officer, or at least work with his full participation. Looking at the average enterprise, particularly in Canada, with a volume production and sales between ten and fifty million dollars, we do not find an elaborate staff where each function is taken care of by a specific officer or manager specialized in just this one function.

On the chart, the board is the body primarily charged with the responsibility for approving plans as they are developed and submitted. The chief executive officer, regardless of his title, will be the one responsible for the initiation, integration and, finally, presentation of these plans. The chief financial officer, the chief operating officer (who may be in manufacturing, engineering or even industrial relations,

ORGANIZATION FOR PLANNING EXHIBIT B



depending on the nature of the business) and the chief marketing officer together form the natural planning team of the company. They may be supported by an economist or consultant, who will inject the objective general aspects into the planning effort.

DUALITY OF THE PLANNER'S FUNCTION

All financial officers have a split personality. They function in two ways. On one side, they are staff men whose job it is to provide information and to translate the activities of other people into monetary terms, financial operating statements, statistical reports and similar pictures which can be viewed and compared—measured. They are, therefore, responsible for quantifying many of the occurrences in business and industry, for expressing the activities in measurable and, therefore, comparable terms. This brings the financial officer into close contact with science and scientific effort, which is always concerned with measuring.

On the other side, the financial officer is a manager because he heads a working organization which has recently been described as a plant within a plant. We look less and less to the clerk, or perhaps a multitude of persons, for the performance of

the necessary data recording, summarizing, comparing and exploiting function and rely more and more on elaborate and costly machinery to do this work better and more efficiently. We refer here, naturally, to data processing with the help of computers. The financial officer as a manager of this activity in his company is responsible for production—for the production of data. The financial executive, then, has a dual function in planning. We must distinguish between the planning he does in coordination, support and consultation with the other top officers of the company and that which he does in concert with his staff for his own department. In the latter capacity, he has to prepare his staff for the ever-changing ways in which data are being processed.

INCENTIVES FOR LONG-RANGE PLANNING

One important aspect of long-range planning is that the results (in contrast to annual budgeting) will not become apparent, in many cases, during the active term of office of those responsible for the planning function now.

This requires a high level of moral responsibility on the part of the planner, who has to suppress the normal desire for immediate, visible success in favor of long-range planning, the results of which he may never see. This is a point on which the management philosophy of the company comes into play. What is the driving force of the planning executive? It must not be predominantly material, personal success, but should be the satisfaction in a job well done, in this case, the planning.

This is where the financial executive comes in—as the monetary interpreter of the long-range plan. As a member of the planning team, he is involved in the evaluation of the plan, particularly if it requires immediate investment in research and development or actual plant and equipment needed to build up the long-range operations. He will have to choose and justify the method of evaluating results and thus will be required to have the same level of corporate morals and character as sustains the planning chief executive.

There is, of course, another approach to the incentive for effective long-range planning. The corporation may have a shares option plan under which the top executive can participate in the growth of the company by acquiring shares at a predetermined low price. Even though the results of long-range planning may only become tangible long after the planner's active life in the corporation has been terminated, this will not detract from his personal interest in the planning team. Through his holdings acquired under the share option plan, he will either personally or through his estate and family participate in the fruits of his planning activities. If a moral justification for share option plans must be sought, it should be found in this connection.

The financial executive involved in long-range planning may be called upon to explain to his colleagues the effects which the long-range plans will have on the expected earnings of the corporation ten, fifteen or twenty years hence, and how the executives of today will share in the success of the company for which the present plans will have laid the foundation through the share option plan.

LONG-RANGE PLANNING PRACTICE

Having outlined this part of the planning function, we should perhaps look briefly at the financial officer's troubles in the field of planning. Most financial executives will be quite familiar with the budgeting effort of the industrial enterprise for which

the financial officer is responsible. This is an effort to present, in short, expected performance statements, usually for a year ahead. All the statements prepared regularly in most companies from month to month and in all enterprises in audited form year by year are in the budget just projected for one year ahead. If the budget is prepared thoroughly, it comprises a statement of margins by products, showing sales, gross profits and overhead—preferably allocated to each line—and for each division and department. A profit and loss account, and even a balance sheet, will be prepared for each profit centre responsibility in the company, all projected for the year ahead. All sorts of deviations from this general picture could be found in the individual company's practice but, by and large, this description should hold true.

Long-range planning is being defined very differently from budgeting. Unfortunately, a complete lack of uniformity in nomenclature is encountered here. The main difficulties are usually found in the language. Financial managers do not agree among themselves what should and what should not be called a long-range forecast. Generally speaking, anything beyond one fiscal year is long range. If we wish to follow Peter Drucker's statement¹ that "anything beyond twenty years equals infinity", it is not worth looking at, because it becomes unpredictable. This is, admittedly, a relatively arbitrary segment of time but, for our purposes, it should be useful to keep these limits in mind.

According to Bruce Payne², long-range planning (L.R.P.) is a new management technique that coordinates all the people and functions of the company in the achievement of practical goals developed on a scientific and objective basis.

A description of long-range planning practice is to be found on page 28 of the well-known book *Business Budgeting—A Survey of Management Planning and Control Practice* issued by the Controllers Institute Research Foundation. It should be read in connection with a paragraph on management planning and control related to budgeting on page 44 and the role of the controller in determining profit objectives on page 79.

PLANNING RESPONSIBILITIES OF THE FINANCIAL EXECUTIVE

In searching for a concise description of the sequence of steps to take in long-range planning, I recommend the presentation reproduced in the article "Long-Range Planning—An Approach to Leadership" by Gerald Fisch and Dean L. Jacoby (Payne-Ross Limited), *Cost and Management*, April 1959. The points on which the financial executive has to exercise his duties are:

"6. Define the master plan and timetable" and

"8. Establish an effective control system."

This point comprises the development of a control system and its active utilization for measuring and reporting deviations from the plan for executive remedial action.

The staff function of the chief financial officer consists mainly of his professional advice to the chief executive officer, the planning committee, if the planning function has been delegated to a committee, or the board, which approves the plan. The advice takes the form of a translation of all planning into monetary terms. To paint this function in broad strokes, one has to realize that all planning ultimately is directed towards a profit goal which, in turn, is expressed in monetary terms. It may suffice

¹Peter F. Drucker, *The Practice of Management*, Harper, New York, 1954.

²Bruce Payne and James H. Kennedy, "Making Long-Range Planning Work", *The Management Review*, Feb. 1958.

SHORT TERM MONEY RATES



NOTE—This chart reflects the rates at the beginning of each month only and does not necessarily record the highs and lows reached in between. Its purpose is mainly to illustrate the trend in short term rates.

to indicate that the question of the purchasing power of the currency, the possible development of interest rates, the return on capital investment and capital employed concepts (quantification), lease versus buy computations, will have to be clarified and uniformly understood among top management members if the plans, when developed, are to find a uniform understanding in the corporation.

FORECASTING TOOLS

Sources of information on forecasting are to be found in *AMA's Research Study No. 50*—"Guide List for Marketing Research and Economic Forecasting" by Robert N. Carpenter. It says there: "The controller, for instance, may be looking for yardsticks in terms of advertising expenditures or other marketing outlays as a percentage of sales . . . This report contains many references to literature on advertising expenditures and the organization of groups for economic forecasting."

One measurement which has become prominently accepted in the last decade on this continent is "return on investment" or "return on capital employed." We are taking the time element into account when predicting the return by discounting or time-factoring the predicted future results of, for instance, sales of a new product. To do that, naturally, we have not only to predict the results of sales and production into the future, which could perhaps be still relatively easy, but in order to discount properly, we have to predict the interest rates which will be applicable to that period. To show how difficult that may be, a chart (Exhibit C) is presented here showing the fluctuations of the interest rate in *one* year in Canada. Obviously, these fluctuations are terrific. It can be quite difficult for the financial forecaster to decide what discount rates should be used for the present year or, still worse, for the coming period of five, ten or twenty years.

The most important forecast available to the long-range planner in Canada is the *Gordon Commission Report on Canada's Economic Prospects*, which attempts to state what Canada's economic potentialities over the next 25 years will be. The report includes forecasts of future economic growth, population growth, estimates of productivity and output, changes in the structure of the economy, and supply of capital. It would be presumptuous to try to give a bird's eye view of the contents of this voluminous work. Suffice it to say that every manager, particularly the financial executive, who has the ambition to participate in management should read at least the first chapter, "Introduction: the Prospects Before Us."

The chart (Exhibit D) from the famous Gordon Report on Canada's future shows a twenty-five year projection.

SETTING THE GOALS

The long-range planner will use compilations of this kind as the background for his work. Anyone who has attempted to plan in long-range dimensions will discover that this is vastly different from the task of, say, budgeting. The main difference is the starting point in setting the goal. For the short range, we have not only the history of the immediate past which, mixed with the present impressions and forward knowledge of changes in the making, enables us to chart the trend into the immediate future, but we have also a set of conditions and resources which can be changed or influenced only to a very limited extent in order to affect the outcome of the coming or current fiscal period.

For the long range, we have first to determine the enterprise's goal or goals and

**INDUSTRIAL DISTRIBUTION OF GROSS DOMESTIC PRODUCTS
(EXCLUDING RESIDENTIAL RENTS AND G.D.P. ARISING IN ARMED FORCES SECTOR)
(average for selected years 1926-55; forecast for 1980)**

<i>Billions of 1949 dollars</i>						
	1927-29	1937-39	1947-49	1950-52	1953-55	1979-81
Agriculture	2.01	1.85	1.89	2.32	2.22	2.91
Resource industries .....	.55	.77	1.04	1.34	1.64	7.85
Total manufacturing	1.87	2.09	4.12	4.67	5.13	16.60
Primary manufacturing .....	.45	.55	1.00	1.13	1.25	3.70
Secondary manufacturing	1.42	1.54	3.12	3.54	3.88	12.90
Construction .....	.49	.38	.75	.91	1.10	2.85
Transportation, trade and services, etc.	2.88	2.56	4.49	5.01	5.57	16.72
Transportation, storage and communication ..	.76	.61	1.18	1.33	1.44	
Trade, finance and services	2.12	1.95	3.31	3.68	4.13	
Business	5.80	5.80	10.40	11.93	13.45	44.02
Civilian government and community services ..	.78	.92	1.41	1.57	1.77	4.08
Total	8.58	8.57	13.70	15.82	17.44	51.00
<i>Per cent</i>						
Agriculture	23.4	21.6	13.8	14.7	12.7	5.7
Resource industries	6.4	9.0	7.6	8.5	9.4	15.4
Total manufacturing	21.8	24.4	30.1	29.5	29.5	32.5
Primary manufacturing	5.3	6.4	7.3	7.1	7.2	7.2
Secondary manufacturing	16.5	18.0	22.8	22.4	22.3	25.3
Construction	5.7	4.4	5.5	5.7	6.3	5.6
Transportation, trade and services, etc.	33.7	29.8	32.8	31.7	31.9	32.8
Transportation, storage and communication ..	8.9	7.1	8.6	8.4	8.3	
Trade, finance and services	24.8	22.7	24.2	23.3	23.6	
Business	67.6	67.7	75.9	75.4	77.1	86.3
Civilian government and community services ..	9.0	10.7	10.3	9.9	10.2	8.0

NOTE: Detail does not always add to totals because of rounding.

SOURCE: Wm. C. Hood and Anthony Scott, *Output, Labour and Capital in the Canadian Economy, 1957*, a study for the Commission, Chap. 7, Table 7.2, p. 315.

then establish the means, be they already in our possession or to be procured, to reach this goal.

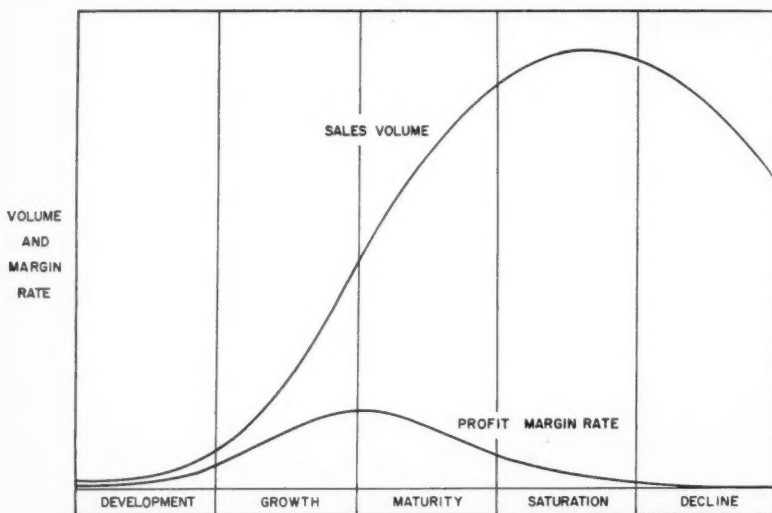
It is surprising how many corporations, particularly small and medium-sized ones, have never spelled out their corporate goals and certainly have never put them in writing. One may say that it is not necessary to define the obvious, but what is obvious to one may seem quite different to another. In short, goals must be determined not in figures, but in philosophical terms. If these terms are too general, of course, they will be of little help in planning.

Too often, in the pressure of our daily toil, we may find that we are hurrying toward an unseen point from which there may be no return. It has been stated that growth is inevitable and an enterprise which does not grow will die. Nevertheless, growth without order and plan may easily become cancerous and deadly.

ILLUSTRATIONS OF LONG-RANGE PLANNING

As an example of long-range planning, Exhibits E and F are graphs presented by the Carrier Corporation during the Northeastern Area (1961) Conference of the Controllers Institute of America at Lake Placid, N.Y. These graphs, presented as

LIFE CYCLE OF PRODUCTS



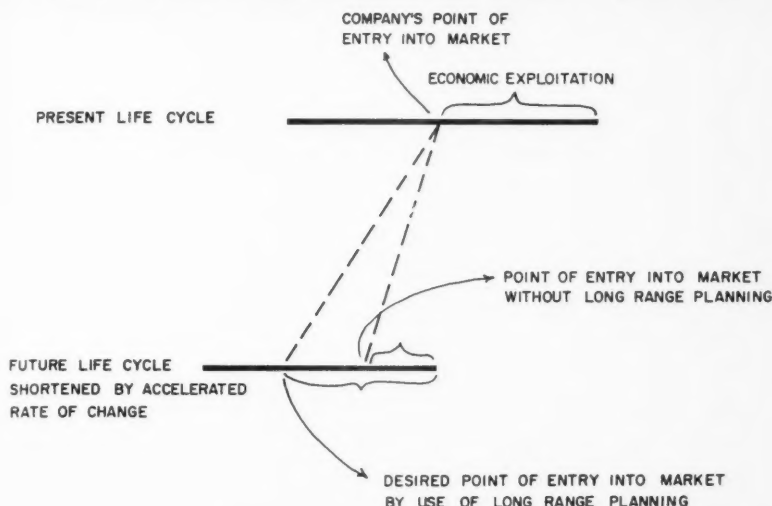
an illustration, show the experience and forecast of happenings at the Carrier Corporation. They are not to be taken as an attempt to generalize expected happenings in the future in other industries and economies. In discussing these charts, we quote freely from the presentation of Carrier Corporation, Syracuse, N.Y.

The first chart (Exhibit E) shows the sales volume and profit margin rate plotted against time. On the vertical axis is depicted the volume and margin rate and on the horizontal axis, the progress of time. The development of the sales volume curve increases steeply and then decreases slowly, neither coincidental with nor paralleled by the margin rate. When the product has matured and is in its decline, the sales volume may still hold but the margin rate has dropped very much. Why? To give one reason: if a company develops a product and brings it into the market with success, it cannot protect the product forever by patents. Without this protection it becomes, of course, fair game to competitors who have not invested in its development and can, therefore, very often produce and sell it more cheaply than the original producer. In short, a special product becomes a commodity; hence, the depicted development.

Exhibit F of this series illustrates some characteristics of the economic exploitation of a product. The chart indicates some of the need for long-range product planning. The length of the top line illustrates the time span of the present life cycle of a product, while the bottom line is the expected shorter life cycle of new products. In short, as we progress, it takes much less time for a product to become obsolete than it did, say, a hundred or even fifty years ago.

Let us also assume that a company has been entering the market at the mid-point of a life cycle, leaving half the time as exploitable economically. If, in the future, the same amount of time were allowed to elapse between research and entry into the

RELATIVE ECONOMIC EXPLOITATION TIME OF PRODUCTS



market, a very much shorter time would be available for economically exploiting the market. Furthermore, this would be the period of decreasing profit margins. All this is quoted only to indicate along what lines the planner must think if he wants to channel the effort of the company into a proper direction.

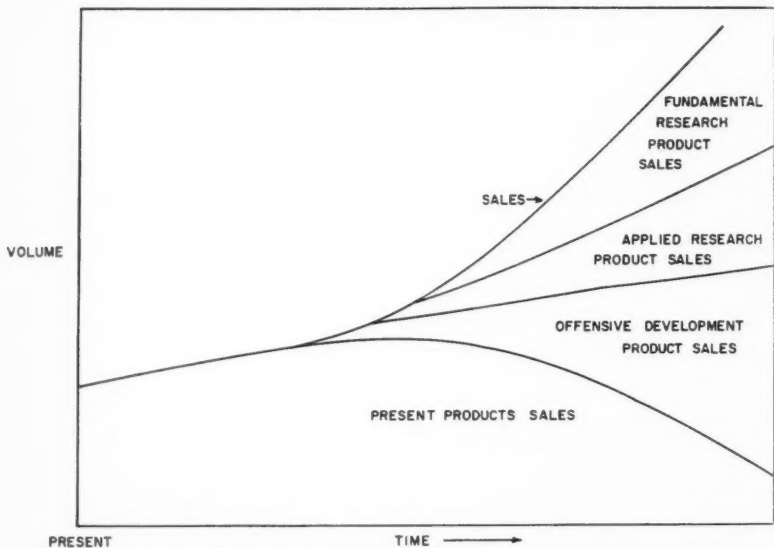
The third and last exhibit (Exhibit G) illustrates what has been referred to as "the gap of uncertainty." The top line of this chart is the desired volume to be obtained by an enterprise over a period of years starting at the present. It indicates that the sales volume of present products will decrease gradually because of the inherent life cycle of these products. Therefore, a compensating volume must be generated from other products in order to obtain the desired objective. Such a volume can first be created by an offensive development program centred closely on existing products, but the conditions resulting from such a program probably will not build up to the figure required to meet objectives.

PREREQUISITES OF SUCCESSFUL PLANNING

Here again, one can very clearly perceive the role of the financial executive in planning. First of all, the objective must be set. Profit is still the cardinal objective in the free enterprise corporation. The financial officer will be prominent in determining how much capital expenditure can and should rationally be made and at what time, how the financing of these capital expenditures could be brought about and by what means. He will, in fact, direct the raising of the capital where and when needed. Altogether, the management of capital, including its control, is his special field for which he has to be thoroughly prepared.

Planning, to be successful, requires continuous review. Plans have to be updated

TYPICAL COMPOSITION OF SALES



periodically in the light of changing conditions and experience gained in the execution of the plans. One way to do this is to have a one-year budget prepared every quarter or a five-year plan prepared every year. In controlling the execution of any plan, it is the financial executive's duty to point out the variances between performance and the plan and the reasons for them if ascertainable. This is an important task, since it will influence the revision of plans and the formulation of new plans.

To be progressive, the financial executive must free himself from the trap of traditional notions. In my opinion, an accounting background has a restrictive effect. It tends to lead the accounting executive away from a fresh approach by confining him to accounting concepts which have been developed in a utilitarian way over the past fifty years. In order to make his reporting much more realistic, he must free himself from these concepts. He can do so if he realizes that the means of gathering data have improved so greatly in the past ten or fifteen years that it is hard to grasp, and it is this difficulty in comprehension which holds back his progress.

A financial officer, aware of his responsibilities and duties, will therefore focus his intent and activities to a much greater extent on education. He will focus his line of endeavour on people because it is the people under his jurisdiction, more than anybody else, who will determine whether the financial function will be taken care of properly in that enterprise five, ten or twenty years hence. Here the time element enters. A machine can often be built in a year, two or three years at the most, but a controller cannot be developed in two or three years. Long-range planning, then, in the financial officer's own department is a necessity that is very often neglected or under-rated.

LONG-RANGE PLANNING IN EDUCATION

From the financial officer's viewpoint, planned education should take three directions:

First, is self-education. The financial officer cannot afford to stand idly by and rely complacently on what he learned in school and the practical education which he acquired at the beginning of his career. Looking back over the past, it is disconcerting to recall what means there were for gathering data, how limited were statistics, and how little was available to the financial officer in the way of preparation for long-range, forward planning. If anybody who has achieved a professional designation thinks that he can now sit back complacently, he is definitely wrong and may easily find himself among the unemployed. We cannot afford this waste. We need continuing self-education through courses, conferences, seminars and, last but not least, reading. The question is not, "Can I afford to attend this conference (seminar or course)?" but, "Can I afford to miss it?"

Secondly, we have to educate our colleagues in management. Though this may sound presumptuous, management team education is the most difficult task in the field of long-range planning. At the outset, the financial executive must make his operating colleagues in management and on the board aware of the necessity of familiarizing themselves with the financial description of operating plans. The operating manager must be taught the financial executive's language to the extent necessary for communication, else accounting jargon must needs be translated into a language understandable to the engineer, the marketing man, the researcher, and the industrial and public relations expert. This is particularly necessary in forward planning since misunderstanding of terms could be fatal. Thirdly, foremost in mind should be the education of the financial executive's own staff. Those who will succeed him, those who assist him at present and will assist his successor in the future, are the structural steel skeleton of a long-range planning edifice. The educational task of the financial officer is tremendous, but is he living up to this task? In the Society of Industrial and Cost Accountants, a unique tool for professional education in industrial accounting has been developed over the past twenty years. From this background, the fittest will rise to the top financial officer's position. The Society has been able to export this effort to Pakistan and to other so-called, underdeveloped countries. We can be proud of this development but, at the same time, must beware of complacency. We must not think that we have really reached perfection when, in fact, we are just beginning.

The post-graduate course of studies sponsored by the Society, which is now in the conceptual stage and has been approved by the Society's Board of Directors, is a further great step forward in the right direction. The intention of this new medium will be the development of professional accountants with R.I.A. standing, or with commensurate education and experience, into financial managers with the broad outlook required to fulfil the ever-increasing duties which arise daily in our fast-moving times of air and space conquest. What is going on on the sidelines of our endeavour and of which, I strongly suspect, we have only the faintest notion is indicated by the following random selection.

NEW DEVELOPMENTS IN SCIENTIFIC MANAGEMENT

Two issues of *Management Science*, a journal brought out monthly by the Institute

of Management Sciences, are used in this demonstration. One of the branches of management science is the science of business management. This seems generally acknowledged in the face of difficulties in defining scientific management. Nobody wishes to imply that this publication (or any other) is required reading for financial managers. It is doubtful if anybody could read profitably any such issue from cover to cover. The object is merely to draw attention to this source of information, as there is a vast field of knowledge developing, and developed, of which many financial officers may have only a hazy idea. In the April 1959 issue, for instance, are two articles—"Planning Business Progress" by Melvin E. Salvesson and "Long-Range Planning—Challenge to Management Science" by Peter F. Drucker. The latter is a basic and most important article by an author whom I consider to be the foremost protagonist in business and management practice and theory. These articles would be worthy of presentation, at least in excerpt, in any dissertation of our theme. In the same issue are other articles on management science which the layman would merely notice as they are difficult for him to read.

In another issue, Vol. 5, No. 1, October 1958, appeared an article by William J. Vatter, Professor at Berkeley University, entitled "Contributions of Accounting to Measurement in Management." From this issue, a few articles have been selected to show in which direction the financial executive and his staff need to become better informed and more proficient if they are to take their rightful place on the planning team. The first article, "Some Experimental Games", deals with the very important field of model building and gaming. Most professional managers will have heard about the management games being arranged and played in the AMA Academy at Saranac Lake. Some gaming sessions were recently held in Canada. In Hamilton, a Controllers' Seminar was arranged at McMaster University. In two successive years, successful games on management problems were played with non-accounting executives working in teams with members of the Controllers Institute.

A short excerpt from this article will serve to show the connection with management situations:

"This paper reports the results of six experiments and analyses performed to explore the applicability of the non-constant-sum case of the theories of von Neumann-Morgenstern, and others, to the actual behaviour of people playing games or *involved in bargaining situations*."

The practical aspects of these studies are immediately visible. You may be able to predict what your bargaining opponent will probably do if you are familiar with this theory of gaming.

"The paper suggests directions in which the theory of games might be modified and extended to improve its applicability and usefulness. A 'split-the-difference' principle is suggested to augment the usual theory, so as to specify the exact amount of payments to be made in an ordinary two-person bargaining situation such as the sale of a used car . . ."

Another article in the same issue reads, "The Theory of Search: Optimum Distribution of Search Effort"—

"The class of problems considered (i.e., search problems directed to optimum allocation of search effort) . . . (and I mention that search and research are identical in many cases) . . . is more general than the problems of linear programming, since the expression to be optimized is non-linear and involves integration; it is more special, since only two linear side-conditions are given.

If the number of such conditions were increased, much of what has been done here could be extended, . . ."

Number 3—"Development and Evaluation of Surveillance Sampling Plans." Again, the question arises, how much do we individually know about sampling? Sampling will become increasingly important in accounting functions. It is already being used by accountants in public practice as auditors and it will probably be used increasingly in our own internal accounting functions. In this article—

"The problem of maintaining quality of inventory in the presence of deterioration is studied. Repeated application of sampling inspections together with replacement policies are used to maintain quality. The effect of such repeated applications can be measured in terms of the proportion of poor product existing at any time. In this paper, the sampling plans studied are those commonly used in acceptance sampling, and the replacement policy consists in replacing lots judged defective by the sampling procedure."

Number 4—"Dynamic Version of the Economic Lot Size Model":

"A forward algorithm for a solution to the following dynamic version of the economic lot size model is given: allowing the possibility of demands for a single item, inventory holding charges, and setup costs to vary over N periods, we desire a minimum total cost inventory management scheme which satisfies known demand in every period. Disjoint planning horizons are shown to be possible which eliminate the necessity of having data for the full N periods."

Again, this comes very close to the financial executive's field because the optimum inventory to be kept profoundly affects forecasting and planning for management.

Number 5 deals with "LIFO vs. FIFO in Inventory Depletion Management." The problem described in this article is to find the order of item issue which maximizes the total field life obtained from a stock pile.

CONCLUSION

These random samples show the need for and direction of additional education for the finance officer's staff. Only if the financial executive and his staff prepare themselves constantly for their role of objective quantification in the overall company planning, will they be actually playing their part. If they stick too closely to "conventional planning", their way to the policy-making and overall company planning level will be barred. The vacuum thus created will be filled by managers with another professional background, be they economists, industrial engineers, scientific programmers, or others.

This presentation has fulfilled its purpose if it has aroused the reader to the recognition of the variety and development of planning tools and the necessity for the financial executive and his staff to keep up to date in the use and application of these tools.

Wouldn't it be great if those succeeding us could say of us—"They planned wisely and intelligently for the future!"

PAYNE, PATTON & PUGSLEY

CHARTERED ACCOUNTANTS

Gordon S. J. Payne, C.A.

Donald R. Patton, C.A.

Philip T. R. Pugsley, C.A.

C. Glen Strike, C.A.

Donald W. Burke, C.A.

1509 Sherbrooke St. West

Suite 14, The Linton,

Montreal, Que.

The Editor's Choice

YES! THE CONTROLLER BELONGS ON THE MARKETING TEAM

by T. J. McGann, *The Controller*, August 1961.

This article begins with the question, "Why does the controller now so often stand outside the marketing picture?" It goes on to show that the main reason the functions of marketing and controllership do not aid and complement each other is that they lack knowledge of each other or the controller is reluctant to speak up. The controller can improve his worth in this area by becoming more aware of the marketing function and then helping to correct weakness, thus improving profits. A good short article, well illustrated.

EVALUATING THE USE OF CAPITAL

by L. J. Smitten, *The Canadian Chartered Accountant*, September 1961.

The author introduces this complex subject by defining "funds invested" and "funds employed" and notes the factors that distort evaluation. He continues with a short illustration and explanation of the various methods of measurement and gives a list of reasons for evaluation and a list of means. Mr. Smitten's aim has been to create an awareness of the complexity of the subject. This article should serve to create interest in and introduce the many recent and more comprehensive articles and books on the subject.

LEASE OR BORROW—NEW METHOD OF ANALYSIS

by R. F. Vancil, *Harvard Business Review*, September-October 1961.

"The purpose of this article, and its sequel in the next issue, is to fill the analytical gap by describing a procedure for evaluating leasing plans and for comparing them with other methods of acquisition in order to determine the most desirable alternative . . ." Leasing contracts are divided into "financial"—a contract covering the life of the asset and non-cancellable—and "operating" leases—of short duration and not involving future commitments. Seven steps are outlined to analyze the question of leasing or borrowing. This article deals primarily with the factors of interest cost and income tax deductions. The next article will deal with residual value of the auxiliary financing costs.

CONTROL OF BURDEN (Two articles)

by K. E. McMullen and G. B. Cleveland, *N.A.A. Bulletin*, September 1961.

In the first of these articles, the merits of controlling burden by major control by account and minor by organization within the account are discussed, as against major control by organization and minor by account. There is a discussion of the budget reports, organization and manpower. The second article is a more specific treatment of building an expense burden for a factory. Together, these articles are well worth the reading time.

COST CONTROL THROUGH MASTER CLERICAL DATA

by A. R. Davey, *The Business Quarterly*, University of Western Ontario, Spring 1961.

This author begins by asserting that the present level of office efficiency is 60 per cent for clerical staff. With the ratio of clerical workers to factory workers increasing rapidly, it is of primary importance to increase office productivity. The use of master clerical data (MCD) is explained as an adaptation of MTM. Outlined is a method of developing standards and installing such a system. This system, along with improved cost control, should do much to increase management's control over spiralling administrative costs.

S.I.C.A. News



INCORPORATED 1920

ONTARIO ANNUAL CONFERENCE

The Ontario Society's Annual Conference held at the Chateau Laurier in Ottawa on October 19 and 20 won general acclaim from those attending as one of the best ever.

Attendance was the highest in recent years with 13 of the 15 Ontario chapters being represented plus a sizeable delegation from the neighbouring Quebec Society.

Centring on the theme "Financial Aids for Management Decisions", the technical sessions were opened by Colin C. Dumbrille, Controller of Du Pont of Canada Limited, with a paper on "Responsibility Accounting." If the accountant is to be more than a "score keeper", Mr. Dumbrille said, "he must participate actively in the business of earning profits." Responsibility accounting is one of the newer developments for accomplishing this, he said, and calls not only for a card of accounts based on the organization chart but "detailed and direct help to operations at all levels of the organization, both from the point of view of planning and of control." He then went on to describe the method of putting this concept into practice as an integral part of the general operation of the enterprise.

In a sequel to Mr. Dumbrille's paper, F. B. Campbell, Secretary-Treasurer of Somerville Industries Limited, presented a case study on "Systematizing Reports for Management Control." As this paper is published in this issue of **Cost and Management**, no more will be said about it here.

The Thursday sessions were concluded with papers on "Cash Flow Analysis for Management Decisions" presented by Professor Y. Langlois of Laval University, and "Economic and Accounting Aspects of Leasing vs. Purchasing" presented by K. R. Lavery, Senior Consultant with Payne-Ross Limited.

The Friday sessions opened with a presentation by K. G. Belbeck, Management Consultant with Stevenson and Kellogg Limited, on "Administrative Costs in Perspective." Mr. Belbeck outlined the forces contributing to growing size and costs in the administrative function, and pinpointed some fruitful areas and methods for cost reduction. However, he warned, "It is administrative control that makes an operation run at a profit", therefore, "let's look before we leap."

In the final paper, Gordon Shillinglaw, prominent author and Professor at Columbia University, spoke on "Overhead in Costing and Competitive Pricing." Cost accounting is largely overhead accounting, Mr. Shillinglaw pointed out, then he went on to outline the objectives of costing. All of these, costing for financial reporting, for control, for decision-making and for pricing, have their related problems and these he outlined, suggesting ways and means of solving them.



DISPLAYING THE MEDALS presented to them at the Ontario Annual Conference are the 1961 Ontario medal winners. Left to right are R. B. Wilson, Hamilton, Canadian and Ontario Medallist in Fundamentals of Cost; J. G. Dagg, Peterborough, Advanced Cost; and E. W. Chambers, Toronto, Industrial Legislation.



TIME OUT FOR A QUIET CHAT is taken by Conference Speaker Dr. Dwayne Orton (left), Editor of *Think* magazine and Educational Consultant for International Business Machines, and Ontario President of S.I.C.A., A. Screaton. The picture was taken at the recent Ontario Annual Conference.

During his luncheon address on October 20, Professor David McCord Wright of McGill University lived up to his penchant for being provocative when he spoke on "The Trouble with Management." Dr. Dwayne Orton of IBM, a spell-binder with a message, completely captivated the closing dinner crowd with his address on "Tomorrow's Managers."

The ladies, who were present in unexpectedly large numbers, were kept occupied and entertained while their husbands attended the Conference sessions. Their comments on the entertainment program as a whole and the ladies' program in particular were highly complimentary to the Ottawa Chapter membership who acted as hosts.



CHAPTERS AND MEMBERSHIP

Sarnia Chapter Holds First Meeting

The inaugural meeting of the new Sarnia Chapter was held on September 21 at the Village Inn Motor Hotel, Sarnia. Some 30 local members and guests in attendance were joined by a delegation from the nearby Grand River Chapter led by Chairman Jack Hutcheson, R.I.A.

The speaker was E. W. Scott, R.I.A., Assistant General Manager of Ryerson Press, Toronto. As First Vice-President of the S.I.C.A. of Ontario and immediate Past Chairman of the Ontario Education Committee, Mr. Scott spoke on "Educational Services of S.I.C.A. and How They Can Help Your Company." In brief, he traced the history of S.I.C.A. in Canada, the development of the course of studies and post-graduate studies, and showed how membership in the Society can benefit industry.

During the course of the evening, the best wishes of the Grand River Chapter were tendered to Sarnia Chapter Chairman E. J. S. Innes, R.I.A., by Mr. Hutcheson, who presented him with a chairman's gavel on behalf of the Grand River Chapter.

Keen interest in the Society and its benefits was shown by the guests in attendance. The Sarnia Chapter is looking forward to a successful series of meetings in this its first year as a chapter of S.I.C.A.

Vancouver Chapter Institutes "Outstanding Member" Award

Vancouver Chapter has announced a unique innovation as the highlight of its activities for this year.

An "Outstanding Member" award has been instituted with the purpose of recognizing and encouraging participation in and support of all Society and particularly chapter activities. Several valuable prizes are being offered with a permanent trophy being awarded to the one with the highest score.

Points will be awarded on the basis of the following five factors: 1) Attendance at chapter and other meetings, 2) New members, 3) Visitors, 4) Chapter news, 5) Manuscripts and publicity. Details of the plan are outlined in the September issue of *Costwise*, the monthly newsletter of the Vancouver Chapter.

This promises to be a valuable experiment and will bear watching by other chapters which are interested in stimulating membership.

Chapter Programs Show Versatility

Chapter programs this year show a great degree of ingenuity of design and much careful planning of meetings, topics and speakers. While it is not possible to comment upon the excellent features of each program, special mention should be made of a few outstanding ones.

Sarnia Chapter, the Society's newest chapter, has produced a 30-page, pocket-size program with plastic ring binding that would do credit to a long-established chapter. It includes blank memo pages for note-taking at every meeting. The Sarnia Chapter was officially inaugurated on November 16 when National President Walter W. B. Dick presided at Charter Night.

Saskatoon Chapter has taken a significant step forward, this year being the first time an official chapter program has been printed. Operating mainly on a student group basis for the past few years, the Saskatoon Chapter has achieved full chapter status again with a printed program showing a full schedule of meetings and a roster of the membership.

Toronto Chapter has produced its most outstanding program for many years, which does full credit to the Society's largest chapter now numbering over 1,700 members. The Toronto Student Section again has its own program of plant visits during the season, 144 attending the first meeting this year.

The Montreal Student Section also has a separate organization and has produced this year an attractive program of student activities.

On the basis of the chapter programs received by the National Office, another successful year is assured.



PUBLICATIONS AND TECHNICAL SERVICES

Second Study to Appear Soon

In the area of technical services, there are sometimes long periods of time during which it appears little is being accomplished. This apparent lull in activity, however, is in reality the period in which most of the work goes on before projects reach the final stage and become public.

While it is our earnest wish to keep readers and members informed of the projects under review, it would be premature to make promises or announcements before these projects reach a fairly advanced stage of completion. In this way, we ensure that publications are not released prematurely before meeting the high standards of the Society.

However, within the next few months, members can expect a possible new feature in **Cost and Management** and the publication of a second Special Study. This study is the work of Mr. Pat Irwin, a Partner in Urwick-Curry Limited, and is entitled, "How to Build a Profit Plan." It has been written and edited with the purpose of providing a brief, practical guide to the philosophy of profit planning and an illustration of the principles involved through an actual example of a profit plan.

This work, which is now being printed, has been edited by a committee made up of Mr. Frank Woods, Director of Marathon Paper; Mr. Glenn Nelles, Comptroller of H. J. Heinz Co. of Canada Limited; and Mr. James Glenn, Vice-President of Canada Line and Cable Co. This committee feels that the study will be enthusiastically received by most of our members and non-members engaged in industry.

PERSONALS

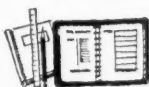
DOUGLAS S. BEAMAN, R.I.A., immediate Past Chairman of the Montreal Chapter, has left Canada to take up duties in Pakistan under the Colombo Plan as adviser to the Pakistani Institute of Industrial Accountants. **Walter Fee, R.I.A.**, of Vancouver, who has served in this capacity for the past year, has returned to Canada.

EARLE J. VINING, B.Comm., R.I.A., has been appointed Secretary-Treasurer of Domil Limited, Montreal. Mr. Vining, an Officer of the Montreal Chapter, was formerly with Armstrong Cork Canada Ltd.

EVERETT W. HARRISON, R.I.A., of the Montreal Chapter, has been appointed Controller of Wheel Trueing Tool Co. Mr. Harrison recently specialized in inventory investment and valuation for Chrysler Corp.

E. W. KING, C.P.A., R.I.A., has been appointed Comptroller of Pet Milk Co. (Canada) Ltd. An Officer of the Toronto Chapter, Mr. King was formerly with Chain Belt (Canada) Limited.

MILAN V. GREGOR, R.I.A., has been appointed Chief Accountant of his Company, Anthes Steel Products Limited, Toronto.



STUDENTS AND COURSES

Enrolments Increase This Year

Though it is too early yet to give final statistics on course enrolments for the 1961-62 academic year, preliminary figures indicate that they will surpass even last year's high total. Subject enrolments in Ontario will be about 4,000, a better than ten per cent increase over last year. At the time of writing, registrations are still going on in some of the provinces. Indications are, however, that correspondence enrolments for Canada are up about ten per cent over last year and lecture class enrolments have increased greatly in many provinces.

Considering the rapid increase in enrolments over the past ten years, it is a significant tribute to the quality of the R.I.A. program that student enrolment has not only been maintained, but increased over previous years.

British Columbia Society Awards

The Society of Industrial and Cost Accountants of British Columbia is pleased to announce the names of the winners of the 1961 awards for high standing on the final examinations.

Medal winners were: Bronze Medal for Primary Courses, A. Trafford, New Westminster; Silver Medal for Intermediate Courses, G. E. Dawson, Ioco; Gold Medal for Final Courses, J. Vandenakker, South Burnaby.

The scholarship winners were: Canadian Western Pipe Mills Ltd. Scholarship for Accounting I, A. Trafford, New Westminster; B.C. Packers Ltd. Scholarship for Accounting II, W. G. Cooper, Radium Hot Springs; Westcoast Transmission Co. Ltd. Scholarship for Accounting III, D. G. D. Gordon, Vancouver; Pacific Brewers Ltd. Scholarship for Industrial Organization and Management, Miss C. M. Briscall, Vancouver; Norman Terry Scholarship for Fundamentals of Cost Accounting, V. A. Neufeld, Richmond; Trans Mountain Oil Pipe Line Co. Prize for Advanced Cost Accounting, J. W. Brethouwer, New Westminster.

ADVANCED COST ACCOUNTING **PAPER I**

QUESTION 1 (10 marks)

The Canadian Zinc Diecasting Company is one of several suppliers of part "X" to an automobile manufacturing firm. Orders are distributed to the various diecasting companies on a fairly even basis; however, the Sales Manager of Canadian Zinc believes that by a reduction in price he could secure another 30% increase in units sold.

The General Manager has asked you, as Cost Accountant, to analyse the Sales Manager's proposal and submit your recommendation.

The following data is available:

	Present	Proposed
Unit Price	\$2.50	\$2.00
Unit Sales Volume	200,000 units	plus 30%
Variable Cost (total)	\$350,000	same unit variable cost
Fixed Cost	\$120,000	\$120,000
Profit	\$ 30,000	?

REQUIRED:

- (1) New profit or loss based on the Sales Manager's proposal.
- (2) Unit Sales under the proposed price required to make the original \$30,000 profit.

SOLUTION 1

(1)

Canadian Zinc Diecasting Company **Statement of Profit and Loss** **(Based on Sales Manager's Proposal)**

Sales	260,000 x \$2.00	\$ 520,000
Variable costs	260,000 x \$1.75	455,000
	$\left\{ \frac{\$ 350,000}{200,000} = \$1.75 \right\}$	
		65,000
Fixed costs		120,000
Loss		<u>\$ 55,000</u>

(2) Canadian Zinc Diecasting Company — Calculations of unit sales at \$2.00 required to earn \$30,000 profit:

Excess of selling price over variable costs	$\$2.00 - 1.75 = \0.25
Fixed cost plus profit to be met	$\$120,000 + 30,000 = \$150,000$
	150,000
Number of unit sales required	$\frac{150,000}{.25} = 600,000$

QUESTION 2 (3 marks)

The P. Co. plans a one-month sales promotion during which coupons worth 10 cents toward purchase of one of the company's products will be distributed to customers. Selection of the product to be promoted is being made and the following figures have been assembled as a basis for the choice.

	Product A	Product B
Regular selling price per unit	30 cents	40 cents
Standard cost of sales	22 cents	35 cents
Marginal income ratio	30%	40%
Anticipated increase in sales accompanied by coupons	60,000 units	50,000 units

REQUIRED:

Tell which product should be chosen and present appropriate figures to support your answer.

SOLUTION 2

P Company
Comparison of profit potentials from the promotion of Product A
and Product B

	A	B
Selling price per unit	30c	40c
Marginal income ratio	30%	40%
Additional (coupon) costs per unit	10c	10c
Marginal income per unit	9c	16c
Profit (loss) per unit	(1)c	6c
Anticipated additional units	60,000	50,000
Anticipated additional profit (loss)	\$(600)	\$3,000

Product B should be chosen, as shown. This accords generally with the rule that advertising is usually best exerted towards those products with the highest marginal income ratio. In the above, the increased volume of B lowered its unit cost enough to permit the profit.

EXAMINATIONS 1960**FUNDAMENTALS OF COST ACCOUNTING****QUESTION 1 (10 marks)**

The following information has been secured for the purpose of estimating for the year 1960 the full operating costs per truck hour applicable to the trucks operated for a service department of a telephone company. The 1959 actual costs are used to calculate the 1960 rate:

- (a) Cost of rent, insurance, etc., of the garage was \$15,576 of which one-third was allocated to the service department.
- (b) The foreman of the garage was paid a salary of \$4,800. All his time was devoted to the trucks.
- (c) The trucks belonging to the service department represent one-quarter of the trucks handled by the garage.
- (d) The heating, and lighting cost of the garage amounted to \$3,540.
- (e) Other running expenses, which fluctuate with the truck operating hours, amounted to \$4,794 for the six trucks in the service department.
- (f) The trucks operate 40 hours a week for 52 weeks each year. During the working hours each of the trucks is down for approximately 60 hours per year for repairs and maintenance. As a result of a strike in July the garage was closed for two weeks.
- (g) Cost of each truck was \$3,500 and its scrap value is estimated at \$400. The life of a truck has been estimated at 12,000 operating hours.
- (h) The estimated repairs over the life of a truck are expected to amount to \$1,400.
- (i) Drivers' wages paid amounted to \$18,720 for the year.

REQUIRED:

Calculate the applicable rate per hour to be used to reflect the full operating costs for 1960 for trucks operating in the service department of the telephone company.

SOLUTION I

Number of operating hours per truck:

40 hours — 52 weeks	2,080
Repairs and maintenance	60
	<u>2,020 hours</u>

Unusual stoppage:

Strike	80
	<u>1,940 hours</u>

Hours operated during the year

Fixed expenses:

Rent, insurance, etc. $\frac{1}{3} \times \$15,576$	\$ 5,192
Foreman $\frac{1}{4} \times 4,800$	1,200
Heating and lighting $\frac{1}{3} \times 3,540$	1,180
Drivers' wages	<u>18,720</u>

\$ 26,292

Expense per truck $\frac{26,292}{6}$

4,382

Rate per operating hour $\frac{4,382}{2,020}$

\$ 2.169

Variable expenses:

Running expenses $\frac{4,794}{6}$

799

Rate per hour $\frac{799}{1,940}$

\$.412

Repairs

Depreciation: Cost	\$ 1,400
Residual value	<u>3,100</u>

4,500

Rate per hour thereon $\frac{4,500}{12,000}$

.375

Total operating hour rate

.787

\$ 2.956

IENT

Total operating hour rate 12,000

\$ 2.956